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NATIONAL PETROLEUM NEWS

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Flood Ravages Wyoming Oil Fields, Pipe Lines Washed Out

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By Special Correspondent
CASPER, Oct. 2.

TORRENTIAL rains which descended upon central Wyoming late last week, swelling the usually dry watercourses to the proportions of rivers and covering lower ground with water to depths of several feet, practically stopped all progress in the oil industry of the state.

The greatest disaster to human life occurred the evening of Sept. 28 when the Burlington passenger train from Casper to Denver went through a bridge on Cole Creek, near Lockett, a flag stop southeast of Casper. This train left Casper at 8:35 p. m. as usual. Prior to the big floods earlier in the year which destroyed about 80 miles of the Burlington line between Casper and Thermopolis, this train was made up at Casper.

Charles A. Guenther, one of the best known of oil men in the state was lost in the wreck and his body has not been recovered from the Pullman which has been under high water ever since the wreck. Guenther has been a resident of Douglas for the past seven years and was general manager of the Derrick Oil Co., with properties in Salt Creek and elsewhere in the state. He was also the organizer of the Mike Henry Oil Co., was treasurer of the state executive committee of the Republican party and prominent in Masonic circles.

So far as is known, Guenther is the only oil man lost in the wreck which took toll of 30 to 40 lives. The number and identities of the greater number will not be known definitely for several days, for the little stream has been a raging torrent and the submerged cars have settled farther into the mud.

Property damage has been great. The Burlington railway, which had been repairing the trackage and bridges which were washed out in the summer has lost this stretch again and it will be several months before service can be resumed between Casper and Thermopolis and hence over the direct way from Denver and Casper to Billings.

Practically all the oil fields of the state were hard hit. Salt Creek sustained the most of the damage, the extent of which is not definitely known, although it is estimated that the Midwest interests lost something like a million dollars. Bridges were washed out in the field, making it impossible to reach many leases. The field is diversified by many small creeks and branches, most of them spanned at various places by plank bridges and culverts and these all went before the flood.

Many parts of the field are still several feet under water and transportation between Casper and the field was ended. Pump stations in the field were at places seven feet under water. Tanks were washed from their foundations and there were many breaks in pipe lines. The only telephone line from Casper to the field that was left was that of the Producers & Refiners Corp.

The field was left in bad shape. A number of wells were uncapped and flooded. The Midwest has two in this condition and the Producers & Refiners, Kinney Coastal and Continental Oil Producing Co. each has one. Many of the dams which impound the water from small branches for drilling purposes were washed out and will have to be replaced. The property loss in countless other respects, such as material washed away, oil lost and the like, will run high.

Casper refinery operations of the Midwest and Texas companies were not greatly interfered with. Both companies have large stocks of crude oil in tank farms near the plants and shipments over the Northwestern to the east continue. The plant of the Midwest at Greybull, though, was shut down when that city was inundated to a depth of several feet and shipments of refined products north and west of Casper are delayed.

A.O.M.A. Convention Gets Under Way

Staff Special

CHICAGO, Oct. 2.—The second annual convention of the American Oil Men's Association was in full swing at the Congress hotel here today.

Up to that time 250 had registered and more were coming in on late trains. All the exhibits were in place by the middle of the day and the exhibit hall presented an attractive appearance. The early arrivals showed much interest in the equipment on display and divided their time between the exhibit booths and milling around the lobby and convention headquarters renewing old acquaintances and making new ones.

Last minute changes in the convention program were to be made as several optional positions still remain on the schedule, the speakers being willing to make their appearance at the time best suited. Secretary Walter A. Willard of the A. O. M. A. announced with regret that Hon. Frederick K. Landis whose name was third on the program of the first day of the meeting, was unable to fill the appointment. He was to have talked on "Modern Business."

Henry R. Rathbone, a prominent Chicago attorney, has consented to address the oil men at the convention. His name has been placed among the banquet speakers. Following Hon. James A. Watson, he was to be heard Thursday evening, Oct. 4. Another speaker scheduled for Wednesday morning is J. M. Finney of Cleveland. He is with the Cleveland Steel Barrel Co., and chairman of the standardization committee of the Steel Barrel Manufacturers Association. The subject of his address is "Standardization of Steel Packages."

Chicago hotels were beginning to receive visitors to the American Oil Men's Association convention Monday night and officials expected large attendance. Work on exhibits progressed rapidly during the day and registration started at nine o'clock this morning. Several refiners and jobbers, besides equipment men appeared at the Congress Hotel yesterday besides persons represented on the program.

William H. Gray of Tulsa, Sam Collins of Ponca City, J. F. Gerodette of New York, G. S. Forcier of Augusta, Kan., Lou L. Childs of Shreveport and other prominent figures from remote points arrived early. Secretary Willard has record of reservations for most association officials and directors and several jobbers from neighboring states.

Sheldon Clark at whose invitation S. A. Guiberson, Jr., is addressing the assembly, states no special place has been made for guests on the program because the schedule is sufficiently open to permit introducing anyone whenever most convenient.

Milwaukee Convention Is Planned For Sound Business

Staff Special

CHICAGO, Oct. 1

HOW an oil jobber is to make profits, and how those profits can best be safeguarded against loss, is to be the whole spirit of the meeting when National Petroleum Marketers Association holds its annual convention in Milwaukee, Oct. 23, 24, and 25. Convention Hall is the place where the exhibition will be staged and where all meetings will be held. As for lodging—well Milwaukee is full of fine hotels which are not nearly so full of guests in the fall as they are in the summer. The association is mailing out some data on reservations but if anybody is in a hurry to find out about the matter, write to Secretary James A. Gilmore of the N. P. M. A., at 76 West Monroe street, Chicago.

Things are being worked into shape rapidly in Milwaukee. The Independent jobbers of Wisconsin are the hosts of the occasion and this is to be a jobbers' convention. There is said to be neither an oil well nor a refinery in Wisconsin. The oil men of the state are jobbers and compounders. (Wadhams Oil Co. has a couple of topping stills which more closely resemble a refinery than anything else in the state.) Wisconsin oil men are bending every energy to make their first national convention a record breaker, and prospects are good. The exhibit booths are selling fast, and there are a great many more of them than usual this season, on account of the large convenient assembly hall.

Breaking All Records

Secretary Gilmore announces that there are spaces left, but that already more have been sold than for any oil jobbers' convention ever held. Some of them are going to be wonders for spectacular beauty, it is said, and some attractive prize systems are being worked out. The Milwaukee jobbers are laying plans for extensive entertainment features, such as have not been made common at conventions. All registered guests are to be entertained at lunch every day together.

Marginal contracts will be discussed fully at this meeting. They have been subjects of a great deal of talk in the industry this season, and a good portion of it has been unfavorable. However, the average jobber is reluctant to give up marginal contracts wholly. I r si-

Of Whom to Purchase

The problem of the Independent jobber's competition will be discussed frankly, according to an announcement in the association's Trade Bulletin. Obviously the tendency of the association is to work out closer relations among jobbers who own no refinery, and refiners who own no distributing plants.

The advertising program being used jointly by Independents over the country, will come up for discussion. It is being handled by an organization within the N. P. M. A., known as the Independent Oil Men of America. Opportunity will be given jobbers who are using it to tell their fellows how it has served them.

The Coupon Interchange, which was launched by jobbers in the states of Illinois, Indiana, Michigan and Wisconsin early this spring, and later joined by dealers from other sections will be more fully discussed for the benefit of those who have not been interested in it up to the present. The detailed program has not been worked out but a tentative one, covering the activities of the three days as published in the association's bulletin is something as follows:

Finance—Oct. 23rd

Cost of Building Stations.
Economy of Investment.
Fewer Stations—More Volume.
Economy of Construction.
Economy of Operation.
Keeping Down Expenses.

Selling—Oct. 24th

Possibility of Advertising.
Display—Outdoor Advertising.
Newspapers and Periodicals.
Direct Mail Advertising.
Constructive Selling.
Destructive Selling.

Future—Oct. 25th

Crude Oil Trends—World Conditions and Facts.

Refining Trends—Improved Methods. Distributing direct as against selling through jobbers.

Marketing Trends—Spot Buying vs. Marginal contracts. Forms of Marginal Contracts. Safeguards for them and dangers to avoid.

Middle States Interests Arranging To Acquire Island Oil Assets

CLEVELAND, Oct. 2.—Announcement has been made by the shareholders' protective committee of the Island Oil & Transport Corp. by which certain assets of the latter are taken over by the recently organized Gulf States Oil & Refining Corp., which is controlled by Middle States, Southern States and Western States Oil Corp. of the C. N. Haskell interests.

Gulf States has been chartered in Delaware and has 5,000,000 shares of common stock, par value $5 each, divided into 4,900,000 of non-voting class A common and 100,000 of voting class B common. The latter is owned entirely by the three Haskell corporations.

Under the plans of the committee, which is headed by Charles T. Brown, holders of Island stock, certificates of deposit of the Linocln Trust Co., or voting trust certificates representing the stock, may deposit their certificates with the Metropolitan Trust Co., 120 Broadway, New York, on or before Oct. 22 and upon payment of $3 per share of Island he'd, receive on Feb. 20, 1924, an equal amount of class A Gulf States stock. Payment is to be in three installments: Oct. 22, Dec. 20, and Feb. 20. Gulf States, the announcement says, reserves the right to withdraw the offer unless a majority of the Island stock is tendered by Oct. 22.

The announcement says the Haskell interests have acquired from a bondholders' committee the Island Refining Co.'s plant near New Orleans and the stock of an Island subsidiary owning a refinery at Palo B'anco, Mexico, and a $12 000,000 breach of contract claim against the parent corporation. The committee announces its intention to co-operate with Gulf States to acquire leaseholds and other Mexican properties of Island subsidiaries which subsequently are to be transferred to Gulf States.

At the time Is'and was placed under a receivership March 20, 1922, it had outstanding $4,200,000 notes secured by capital stock of subsidiaries and $5,500,000 bonds secured by a mortgage upon the New Orleans plant and a pledge of the stock of the subsidiary which owned the Palo Blanco plant. The breach of contract claim and sundry credits brought the total indebtedness to approximately $26,000,000.

This indebtedness with the exception of the bonds issued against the New Orleans refinery will be eliminated under the committee's plan, it says. An issue of $2,275,000 bonds will be put out in exchange for the $5,500,000 bonds now outstanding and $725 000 additional bonds will be issued for the purpose of supplying working capital.

Only 1,500,000 shares of class A stock will be issued at present. The Gulf States balance sheet without taking into account the two refineries and the contract claim, gives these figures:

ASSETS

Leases, well equipment.....	$6,625,514
Pipe line, tanks, appurtenances, material on hand ..	2,690,741
Oil, current assets	792,698
Total	$10,108,953

LIABILITIES

Class A stock.....	$7,500,000
Class B stock	500,000
Surplus	2,108,953
Total	$10,108,953

Gulf States claims daily average production of 9,276 barrels with wells pinched in. Normal capacity is said to be 13,346 barrels daily.

The refineries will be owned and operated by the Orleans Refining Co., owner of the former Island Refining Plant at New Orleans, and the entire stock of Orleans Refining will be owned by Gulf States, it is announced. Orleans Refining will have but the nominal bonded indebtedness, while Gulf States Oil & Refining, which will own and have charge of crude oil production and own the stock of the refining company, has no indebtedness.

The East Braintree plant of the Massachusetts Oil Refining Co. in which Island has a 51 per cent interest was sold several months ago to the Cities Service Refining Co., a new Henry L. Doherty corporation.

Officers of Gulf states are: P. D. Saka'atvala, president of Middle States, president; Scott Ferris, president of Southern States, vice-president, and W. E. Allaun, vice-president of Southern States, secretary and treasurer. These three with C. N. Haskell, chairman of Middle States, and C. J. Haskell, president of Turman Oil Co., constitute the board. Present Is'and shareholders are to be represented later if the plan is carried out, it is announced.

THIS WEEK'S OIL NEWS SUMMARIZED

Marketing

(Marketing News, pp. 113-124)

GASOLINE demand is holding up unusually well for the season and as a consequence, prices remain firm in the leading refining districts. Indications now point to a greater consumption of motor fuel during the coming winter than last winter because of the greater number of enclosed automobiles in service.

This expectancy of more extensive motoring also accounts in part for the increased demand for lubricating oils used in the compounding of motor lubricants. There has been some stiffening in the prices of lubricating oils in Pennsylvania and the higher prices established in the Mid-Continent two weeks ago are being maintained.

The approach of cold weather the nearness of which was emphasized by the recent cold wave through the northern tier of states, has stimulated the demand for kerosene and light fuel oil distillates which may be burned in domestic heating plants. Kerosene is becoming scarce. Prices are advancing in Pennsylvania and Kentucky and a forward movement may be expected soon in the southwest.

Fuel oil, however, has not rallied to the approach of cooler weather. The open market for fuel is comparatively quiet and active competiton is coming from some of the heavier crudes now being produced in Arkansas and Texas. Smelters in the El Paso territory are turning to this crude in place of that coming from north Texas refiners who now are entering the Standard of Indiana territory in competition with Oklahoma and Kansas refiners.

Lyman Stewart Dies In Los Angeles Home

LOS ANGELES, Oct. 1.—After an illness of only a few days, Lyman Stewart, chairman of the board of directors of the Union Oil Co. of California, succumbed to an attack of acute bronchitis, Sept. 27. He was 83 years old on July 23. He died in his home, 353 Lafayette Park Place, this city.

Mr. Stewart had been identified with the oil industry for more than 64 years, antedating even John D. Rockefeller in this respect. He was born in Titusville, Pa., near which city the Drake well was drilled, and four months after that well completion Mr. Stewart, then 19 years old, made his first investment in oil.

After 24 years of active work in eastern oil fields, Mr. Stewart went to California in 1883 and formed the partnership of Harrison & Stewart out of which grew the present Union Oil Co. of California.

Funeral services were held today in the Bible Institute, which he assisted in founding about 10 years ago. Interment was in Rosedale Cemetery, Los Angeles. The pallbearers were officers of the Union Oil Co. and directors of the Bible Institute.

W. L. Stewart, son of Lyman Stewart, is president of the Union and in active charge.

Financial

(Financial News, pp. 125-126)

OIL stocks developed strength last week in spite of a depressed market for industrial shares and substantial gains were made by most of the leading issues. The upward movement was stimulated by the expressed belief by numerous authoritative observers that the bottom has about been reached by the oil industry and that conditions will improve, perhaps only slowly, from now on.

The short interest in oil stocks is said to be much lower which indicates that professional traders believe that the turning point in the industry is at hand.

There also is an accumulation of Standard Oil stocks under way and gains were made by all of the more active issues. Penn-Mex Fuel underwent a flurry which carried it is a new high for the year on announcement of completion of a 3500-barrel well in Mexico. Pipe line shares were strong with exception of Eureka which was weakened by the reduction of the dividend from $3 to $2 for the quarter.

Small gains were made by most of the Independent oil stocks on the curb market.

Late Price Changes

NEW YORK, Oct. 1.—Standard Oil Co. of New Jersey today reduced price of bunker oil 15 cents to $1.45 f.o.b. New York harbor refinery. Other refiners are meeting the reduction.

* * *

OMAHA, NEB., Oct. 2.—Standard Oil Co. of Nebraska has increased tank wagon price of gasoline 2 cents to 15 cents at Crawford, Neb., and reduced kerosene price ¼ cent to 13 cents.

Seeks Low Tanker Rate With Fuel Offer

WASHINGTON, Oct. 2.—Standard Oil Co. of New Jersey has offered to supply U. S. Shipping Board vessels with fuel oil for all of next year, 10,680,000 barrels in all, at prices ranging from $1.36½ a barrel at New York to $1.11 a barrel at Port Arthur, Texas, with prices for delivery at intermediate points in proportion to those quoted.

It also has bid alternatively for the substitution of a new contract for the existing one, at prices from $1.39½ at New York to $1.14½ at Port Arthur on condition that the shipping board keep six tankers in the New York San Pedro service for another year at 70 cents. This is considerably below the going rate.

Production

(Production News, pp. 65-80)

THERE was no marked change in daily average production in the United States the past week, according to the estimates by fields. Oklahoma's production fell as it has been doing for several weeks but this is in estimates and does not accurately represent the marketed output under the proration. This state, and most of the others, continue to show fewer completions each week and until operators are convinced that a betterment of the market is in sight, this condition will continue. Such conviction will be effected when the pipe lines resume running all the production and making new connections.

According to the U. S. Geological Survey figures for August, which were issued last week, domestic production during that month was not startlingly ahead of consumption, the latter being represented by deliveries by pipe line companies. There was a difference of 91,500 barrels daily. This in spite of the record production reached during the month, as shown by the Survey.

Stocks increased during August, according to the Survey 4,879,000 barrels, which is not a true figure as a reclassification has been made by which more than 4 million barrels has been withdrawn from the pipe line and tank farm stocks and otherwise handled by a company in the Mid-Continent, which causes this amount to disappear from the Survey records.

Johnston Of P & R Corp. Is Vice President

Staff Special

CHICAGO, Oct. 1.—H. E. Johnston, for the past year general sales manager of the Producers & Refiners Corp., was elected to the office of vice president in charge of sales and distribution, at the last meeting of the directorate. In more than 18 years' experience in the oil industry Mr. Johnston has had only two connections, having served The Texas Co., from the early part of 1905 to September 1919. He is a native of Muskegon, Mich., but he joined the forces of The Texas Co., in Beaumont, Texas, starting as secretary to the sales manager.

Following the activities of the company, Mr. Johnston went to Houston in the spring of 1908, then to Denver in the summer of 1911, and before Christmas of 1917 was superintendent of the Rocky Mountain division. It was from this position that he joined the P. & R. In July 1922, as general sales manager, Mr. Johnston took up his headquarters in the Wrigley Bldg., Chicago, where he still remains. Among other duties he is president of the Hawkeye Oil Co., distributing subsidiary of the P. & R.

Lower Rates From New Orleans Handicap Western Refiners

By J. C. Chatfield
STAFF REPRESENTATIVE

TULSA, Sept. 29

STRANGE things become factors in the Mid-Continent refinery markets from time to time. Just now one of the main factors in the gasoline market is the competition which has existed for many years between the operators of river craft on the Mississippi and the railroads which parallel the long navigable river.

Since the appearance of California light crude at the mouth of the Mississippi river to replace the failing supply of heavier Mexican crude, the refiners in the vicinity of New Orleans have had a problem of disposing of the greater yield of gasoline they have been recovering from their stills. The export market has been unable to absorb the goods so the river refiners have been forced first into the southeast in competition with north Texas, north Louisiana and Arkansas and now into Indiana marketing territory in competition with Group 3.

Freight rates from New Orleans and vicinity which have been built up over a period of years seem to have been made to order for just such a contingency as faced the refiners there. In their effort to haul goods of all sorts, the railroads along the Mississippi have been forced to put into effect rates much lower than the general scale prevalent throughout the country.

The result of the low rates for hauls up the Mississippi valley, particularly to river points and to points east of the river in the Ohio valley, has been to give the New Orleans group a tremendous advantage over the Mid-Continent. With prices above those prevalent in Group 3, the New Orleans refiners are able to deliver gasoline in Indiana, Ohio and adjacent states at a much lower cost to jobbers than Oklahoma refiners. The north Texas group is at an even greater handicap on account of its 2½ cents differential over Group 3.

To Dayton the rate from New Orleans is 40 cents per hundred as compared with 52 cents from Group 3 and 54½ cents from north Texas. The advantage to New Orleans is .0079 cents per gallon over Group 3 and .0095 cents over north Texas. In other words, with a price of 6¾ cents per gallon on Navy at New Orleans, refiners there could deliver gasoline to Dayton at a lower price than Oklahoma refiners could with a 6-cent price f.o.b. Group 3. The New Orleans price would almost equal a 5¾-cent price f.o.b. Wichita Falls.

The effect of river rates is seen clearly in the difference made by a few miles of haul west of the river. The rate from New Orleans to Davenport, Ia., is 36 cents per hundred and to Des Moines 50½ cents, although there is little difference in the acutla mileage of the haul.

Better rates from New Orleans are not the result of a mileage scale. To most of the competing points in Indiana and surrounding states New Orleans is from 600 to 800 miles further distant than most Group 3 points of origin. The rates are entirely due to the competition between land and water carriers.

In the attached table comparative rates are given from New Orleans, Group 3 and north Texas to a number of points in the territory which is usually considered Group 3 marketing territory.

Opinion among traffic managers in Group 3 is that there can be no readjustment of rates obtained which would permit Group 3 to compete with New Orleans on an equal basis. The railroads are perfectly within their rights in establishing rates up the river which will compare favorably with the water rates. And because they have such rates up the river is no excuse for Group 3 to demand and receive reductions so that it can compete on an even basis. The misfortune of the Mid-Continent appears to be that it has no navigable river running from Oklahoma to Indiana.

Comparative Freight Rates From Group 3, North Texas and New Orleans to Typical Marketing Points.

Destination	New Orleans Rate per Cwt.	New Orleans Rate per Gal.	Group 3 Rate per Cwt.	Group 3 Rate per Gal.	North Texas Rate per Cwt.	North Texas Rate per Gal.
Dayton, O.	.40	.0264	.52	.0343	.54½	.0359
Akron, O.	.45½	.0300	.56	.0369	.58½	.0386
Cleveland, O.	.45½	.0300	.56	.0369	.58½	.0386
Cincinnati, O.	.38	.0250	.51½	.0339	.54	.0356
Indianapolis	.36	.0237	.49½	.0326	.47½	.0313
South Bend	.43	.0283	.49½	.0326	.52	.0343
Detroit	.45½	.0300	.56	.0369	.57½	.0379
Grand Rapids	.49	.0323	.53½	.0353	.56	.0369
Milwaukee	.41½	.0273	.39½	.0260	.42	.0277
La Crosse	.49	.0323	.42	.0277	.44½	.0293
St. Paul	.52½	.0346	.43	.0283	.45½	.0300
Davenport, Ia	.36	.0237	.33	.0217	.35½	.0234
Des Moines	.50½	.0333	.33	.0217	.35½	.0234
Peoria, Ill	.36	.0237	.33	.0217	.35½	.0324
St. Louis	.29½	.0194	.29½	.0194	.32	.0211

Widespread Effect May Follow Southern Rate Increase

WASHINGTON, Oct. 1.—Increases in freight rates on petroleum and its products, from lower Mississippi river refining points to Mobile, Gulfport, Pensacola and other points in Alabama and Florida, which, in the future may become of extreme importance because of their bearing on all rates east of the Mississippi and south of the Ohio and Potomac rivers, will go into effect Oct. 23 because the Interstate Commerce Commission has approved them. It approved them notwithstanding the protests of the Standard Oil companies of Kentucky and Louisiana, Island Refining Co., Mexican Petroleum Corp., of Louisiana, New Orleans Refining Co., chambers of commerce of Pensacola, Mobile and Atmore and the Louisiana Railway & Navigation Co., which serves the Shreveport and other north Louisiana refining points, as well as North Baton Rouge and New Orleans.

In a broad way of speaking, it was a victory for the Louisville & Nashville, which maintains a rate of 41.5 cents on petroleum and its products from St. Louis to New Orleans. The increases, while not as great as proposed, except to Mobile and a few other points, will be substantial. In themselves they are not so important. It is their bearing upon the general revision of rates in the southeast that has been in the process of making since May, 1922. The higher rates were made to remove long and short haul violations.

The basis for the increases proposed by the railroads was that 41.5-cent rate from St. Louis to New Orleans. The railroads took that rate and found what percentage it was of the first class rate from St. Louis to New Orleans and then applied that percentage to a first class rate they have proposed from New Orleans to Mobile, a distance of 140 miles. That percentage has given a rate of 22.5 cents, an increase of four cents per 100 pounds, or a little more than 21 per cent. The commission said it had not approved the proposed first class rate from New Orleans to Mobile but regardless of that fact it allowed the railroads exactly what they proposed for Mobile. It did not allow as much as they asked for at other points.

Instead, the commission said rates should be made in accordance with a mileage scale. The finding that rates made in accordance with that scale would be reasonable, the commission said, was without prejudice to a different finding in the big case before mentioned. The decision, which is of prime importance to the industry, is as follows:

"Upon consideration of all the facts and circumstances of record, we are of opinion and find that respondents have not justified the suspended rates and that for the purpose of revising present rates to conform to the provisions of the fourth section, rates should be established which will not exceed the following basis:

For Application from New Orleans

Distance Miles	Cents per 100 pounds
60 and over 50	16
70 and over 60	17
80 and over 70	18
90 and over 80	19
100 and over 90	20
110 and over 100	21
120 and over 110	21.5
130 and over 120	22
140 and over 130	22.5
150 and over 140	23.5
160 and over 150	24.5
170 and over 160	25
180 and over 170	26
190 and over 180	26.5
200 and over 190	27
225 and over 200	28
250 and over 225	29

"Differentials from Destrehan, Good Hope and Kassel should not exceed

the following amounts in excess of the New Orleans rates:

"To points not more than 110 miles distant from New Orleans, 3 cents.

"To points over 110 miles but not more than 150 miles from New Orleans, 2 cents.

"To points more than 150 miles from New Orleans, 1½ cents.

"Differentials from Baton Rouge, Natchez and Vicksburg over New Orleans should not exceed the following amounts:

"To points not more than 110 miles distant from New Orleans 4½ cents.

"To points over 110 but not more than 150 miles from New Orleans, 3 cents.

"To points more than 150 miles from New Orleans, 2½ cents.

"The continuance of the present rates from Shreveport, Houston and other producing points west of the Mississippi River to Gulfport, Mobile and certain other points will create undue prejudice against shippers at New Orleans Baton Rouge and other points involved in this case if rates as above authorized are established without a revision of rates from points west of the Mississippi River. Such a revision, therefore, should be made contemporaneously with the establishment of rates not in excess of those approved herein. Nothing herein should be construed as approving the full combination of local rates from points west of the Mississippi River to the points involved herein."

Petroleum Division, A. I. M. M. E. Meets During Exposition

Staff Special

TULSA, Sept. 29

THE first meeting of the recently-organized Petroleum Division of the American Institute of Mining and Metallurgical Engineers, otherwise known as the American Institute of Petroleum Technologists, will hold its first meeting Oct. 11 and 12, during the International Petroleum Exposition in Tulsa, and has announced a program of important papers to be delivered before its members.

This organization, while attached to the parent A. I. M. M. E., is in its field an entriely separate body, as its purpose is to devote itself exclusively to petroleum and its problems, and to work for closer co-operation between men engaged in producing oil. It supplanted the old oil and gas committee of the institute, whose activities were of a more or less desultory nature.

The initial meeting of the Petroleum Division has been planned around the subject of handling oil on leases. Among questions to be considered are the treatment of cut oils by various processes now in use, evaporation losses, evaluation of casinghead gas, etc. It is hoped by the officers of the division that in the discussion of these papers many points will be brought out that will be of great practical value. The meetings will be held at the High School auditorium. The program follows:—

Program for meeting of Petroleum Division of American Institute of Mining and Metallurgical Engineers, Tulsa, Oct. 11 and 12, 1923.

"Separation and Purification of Liquids by Centrifugation, with Special Reference to Petroleum." A. F. Meston.

"Centrifugal Removal of Wax from Petroleum Lubricating Oils." Leo D. Jones, Engineer, Sharples Co.

"Centrifuging Petroleum Refinery Emulsions". Eugene E. Ayres, engineer, Sharples Co.

"Principles of Chemical Treatment of Cut Oil". E. O. Sanguinet, chief engineer, the Tretolite Co.

"Principles of Electrical Treatment of Cut Oil". F. D. Mahone, Petroleum Rectifying Co., of California.

"Evaporation Losses", J. H. Wiggins, Chicago Bridge & Iron Works, formerly of U. S. Bureau of Mines.

"Evaluation of Casinghead Gas". O. U. Bradley, engineer, Indian Agency, Muskogee.

"Explorations for Petroleum in the United Kingdom". E. L. Ickes.

The general theme of the program is handling of oil on leases. Several other papers, titles of which have not been announced, are expected to be presented. The meetings are open to the public, and special invitation is extended to all production men. Meetings will be held morning and afternoon.

Here's Luck To New Oil Engineers' Organization

THE Petroleum Division of the American Institute of Mining and Metallurgical Engineers should become a useful factor in the further development of the petroleum industry.

The remarkable growth of the industry during the past 10 years has undoubtedly been greatly furthered by careful study of scientific principles involved in its various branches. What has been accomplished by geologists is perhaps the greatest example of the effect of science as applied to the search for petroleum. The idea back of the new organization is that what the geologists have accomplished in uncovering Nature's hiding places for oil, engineers can accomplish along the lines of production and conservation.

While the science and knowledge necessary to find oil has progressed remarkably, the problems involved in getting the oil out of the ground and preparing it for use has been left largely to individual efforts. Much progress has of course been made, but results have been minimized by lack of teamwork in attacking the various problems, and lack of a means of systematically disseminating knowledge gained through individual effort.

Recognizing the need for closer co-operation among men engaged in oil production, a group of Tulsa men last year began the foundation of the present organization. Many of the engineers engaged in the study of production problems already were members of the A. I. M. M. E., and it was therefore decided to attach the new organization to that society in order to overcome some of the difficulties attendant upon the founding of a new organization. As a consequence, the desultory activities of the old oil and gas committee of the institute were supplanted by the new petroleum division. Affiliation with the old society serves to lessen many of the financial and other difficulties involved, but the division is entirely separate from the parent organization both in scope of work and management of its affairs.

That there is need for such an organization cannot be questioned. It will provide a common meeting ground for the scientifically trained man with the practical man, each of whom can give something of value to the other. Both have the same problems to solve, and the fact that they approach their problems from different viewpoints makes it certain that a meeting upon common ground will be beneficial to each.

The success of the undertaking depends largely upon hearty co-operation among men engaged in the various activities connected with the production and utilization of oil. The sole qualification for membership is that one be interested in oil production, conservation and utilization.

We predict a bright future for the Petroleum Division, and hereby wish it the best o' luck.

—A. F. H.

Last Touches Being Put On Tulsa Petroleum Exposition Plans

TULSA, Oct. 3

FINISHING touches are being put on the buildings and grounds; exhibits already are being put in place; floats for the parades and pageants are receiving the final dashes of color; delegates are on their way from foreign countries; Oklahoma Indians are getting together their finest beads and feathers, all in readiness for the opening of the International Petroleum Exposition and Congress here on Monday, Oct. 8.

That it will be the largest gathering ever held by the oil industry is indicated by the advance reservations made at local hotels, as well as by thousands of inquiries of various kinds that have been received by exposition officials.

The nominal condition of martial law in Oklahoma, according to assurances from Governor Walton, will not interfere in the least with the big event. In fact, the few soldiers who now are in Tulsa will assist in every way possible toward making the affair a success.

Railroads in the western and southwestern Passenger Association territories all have announced reduced round trip fares to Tulsa, the rate being fare and one-half for the round trip.

Petroleum Congress

Leaders in various branches of the industry will gather at the sessions of the petroleum congress on Oct. 9 and 10 for a discussion of vital problems of the industry. Resulting from these meetings is expected to be an improved understanding of the problems of the producers, refiners and marketers not only by the industry at large, but also by the general public.

Not only will there be at the congress speakers from all parts of the United States, but there also will be numerous foreign speakers and observers. Delegates from Roumania, Guatemala, Peru, China, and Ecuador are on the program as speakers. Venezuela, Italy, France, Canada and Japan are among the other foreign countries that will be represented, Venezuela having engaged a booth for a display showing the petroleum possiblities of that country.

Educational Exhibits

The scientific and technical committee of the exposition has arranged displays which will occcupy an entire building. The feature of this section will be a completely equipped laboratory in which chemists and other technical men will work throughout the week making tests of petroleum and its derivatives. This will show in a graphic manner that the refining of petroleum is a series of highly technical processes instead of the simple boiling of crude oil in a still to obtain gasoline.

In this building also will be displays showing the geological phase of petroleum exploration and development. Various government bureaus have co-operated in the assembling of exhibits and data in this division.

An important link in the exposition's effort to show every stage in the petroleum industry, from the time the geologist begins his investigations until gasoline and lubricants go into the motor car of the consumer, is a series of drilling outfits in operation. This exhibit will illustrate the standard cable tool, rotary and diamond core drill methods of penetrating the earth in search of petroleum.

A miniature refinery constructed by the Sinclair Refining Co. is of considerable educational value. It shows tiny wells, from which the crude petroleum is pumped through a pipe line to the stills of a refinery. The plant contains all the units necessary to make up a complete modern refinery. Then, to show methods of distribution, are tank cars, tank wagons and a filling station, to which motor cars drive for fuel and lubrication.

Drake's Drilling Tools

Among the hundreds of relics of the early days in petroleum history that are being gathered together are the original tools with which Col. Edwin L. Drake in 1859 drilled the well near Titusville, Pa., which marked the beginning of an industry that has become the second largest in the United States.

These relics are owned by Lewis Emery, Jr., of Bradford, Pa., and this is the first time they have been shown outside his private museum since they were acquired by him in the early 70's. There also will be shown such mementoes of petroleum's early history as the bit which drilled the first well in the old Bradford field and relics of the first commercial well in the Mid-Continent territory.

For comparision with these early tools and appliances will be every modern device used in the producing and refining of petroleum. In the industrial section manufacturers of petroleum equipment, refiners and others allied with the business to the number of almost 200 will have displays. There also has been opened in response to numerous requests a transportation section in which will be displayed motor trucks for oil field use, tractors, automobiles, tank trucks, tool racks for field cars and similar equipment that forms a vital link in the industrial chain.

Pageantry Section

In the line of amusements at the exposition will be, among other things, a program of parades and pageantry, starting at 10 o'clock Monday morning with the arrival on a special Frisco train of "King Petroleum," who will be conveyed in state to the exposition grounds for the opening ceremonies. Wednesday afternoon the civic organizations of Tulsa will co-operate with the exposition management in staging a parade which forms a part of "The Pageant of Petrolia." It is in this parade that "Queen Petrolia," her six "Duchesses" and other attendants will occupy positions of honor. On Saturday afternoon the merchants will hold a parade in which also will be the floats constructed by the exposition and the civic bodies. Representatives of many tribes of Oklahoma Indians will participate in the pageantry.

Twice daily throughout the week will be given performances of the "World's Hippodrome" in Convention Hall. Receptions and dinners will be given for distinguished foreigners and other delegates.

In addition to the petroleum exposition and congress, there will be held in Tulsa during the week more than a dozen conventions of organizations affiliated with the industry and other bodies.

During the week will be held the first meeting of the Knights of the Derrick, a non-political, non-sectarian organization sponsored by the exposition management. Not only will this body stage the parades and pageants at the exposition each year, but it will devote its energies to such worthy projects as the establishing of a home for aged and decrepit oil workers. A. V. Bourque of Tulsa, secretary of the Association of Natural Gasoline Manufacturers, who has been chosen chairman of the organization committee, states that many applications for membership already have been received and that, during the exposition, a large membership is expected to be obtained. Any person who is a bona fide member of the oil fraternity is eligible to membership.

During the week the exposition is expected to be visited by from 100,000 to 150,000 persons. There is little doubt in the opinion of the executives but that it will be by far the largest gathering ever held by followers of "King Petroleum."

Ford To Sell Gas?

TULSA, Oct. 2.—Rumors are current that Henry Ford is showing some interest in proposals to market gasoline through Ford agencies over the country. Diligent inquiry here, however, fails to bring to light that Ford has actually made a deal with any Mid-Continent refiners to take surplus stocks of gasoline off their hands as has been reported in the daily papers, or that he has any immediate intention of going into the oil business.

CHARLESTON, W. VA., Oct. 2.—The city council last night authorized Mayor W. W. Wertz to buy gasoline in tank car lots and sell it in an effort to force down prices here. Gasoline is now 23 cents at the service station. This includes a state tax of 2 cents a gallon.

CHICAGO, Oct. 1.—W. L. Drake, of the Hawkeye Oil Co., has just established a division office at Peru, Ind. The company's activities in Indiana and Kentucky will be operated from this point.

Program For The First Annual International Petroleum Exposition And Congress

Tulsa, October 8 to 14

Sunday, October 7, 1923.

8:15 p. m. Special Pre-Exposition First Night Performance World's Hippodrome in Convention Hall at Exposition Grounds.

Tulsa Night

Program of Features

1. Vallal and Zermaine
2. "Ballet of Jewels"
3. Kremka Brothers
4. The Six Belfords
5. Fink's Mules
6. Art Landry's Band
7. Lester Bell and Griffin
8. Camille Trio
9. Flory and Francis

Monday, October 8, 1923.

9:00 a. m. Opening of Exposition Gates.

9:45 a. m. King Petroleum arrives at Frisco Station and is escorted by the president, officers and directors of the exposition to his float, thence over the parade route (See route elsewhere) to the Exposition Grounds, where he will enter at Grady Street gate, near Main Street. From there he will be escorted on foot to Convention Hall, where he will be met by Mayor Newblock.

Convention Hall Program

11:00 a. m. Invocation.
11:10 a. m. Speech of Welcome by Mayor Newblock.
11:30 a. m. The President of the International Petroleum Exposition and Congress presents the scepter to King Petroleum.
11:45 a. m. Royal Address by King Petroleum.
11:50 a. m. Appointment of Committee on Permanent Organization.
12:00 m. Music by Exposition Band.
12:10 p. m. Report of Committee on Permanent Organization
12:20 p. m. Adjournment.
2:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
7:00 p. m. Unveiling of Window Displays up town.
8:00 p. m. PublicParade from up town to Exposition Grounds
8:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
10:30 p. m. Street dance on Sixth from Main to Boulder, and on Boulder from Sixth to Fifth.

Other Events

Registration of Delegates to Petroleum Congress all day at 212 South Boston Avenue.

Validation of Railway Certificates to insure half-rate return fares, all day at 212 South Boston ave.

Tuesday, October 9, 1923.

8:45 a. m. Opening of Exposition Gates.
9:00 a. m. Opening of International Petroleum Congress at Convention Hall.

Program

9:00 a. m. Address by President L. B. Jackson.
9:30 a. m. Address by Elwood Sampson, Secretary, Detroit Association of Purchasing Agents—"Profits from Purchasing."
10:00 a. m. Address by W. A. Durgin, U. S. Department of Commerce—"Standardization."
10:30 a. m. Address by Senor Don Francisco Latour, Minister from Guatemala—"Prospects of Oil in Guatemala."
11:00 a. m. Address by Dr. Santiago F. Bedoya, Secretary of the Peruvian Embassy—"Petroleum in Peru."
11:30 a. m. Address by K. C. Heald of National Research Council.
12:00 m. C. Clark Reed—"Relationship of Supply Companies to the Oil Producers."
12:15 p. m. Adjournment.
12:30 p. m. Group Luncheon Meetings.
2:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
8:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.

Conventions

Purchasing Agents' Association at own offices, 307 South Cincinnati Street.

Program

1:00 p. m. W. L. Chandler—"The District Conference."
2:00 p. m. Dr. A. P. Bjerregaard.—"Fuel Talk" with hour's discussion following.
4:00 p. m. President Steele—"The National and The District."
6:00 p. m. Tea Room Tulsa Hotel, Tulsa Past President Dinner to visiting National Officials. Attendance limited.

Discussions following.

Oklahoma Jobbers' Association at Chamber of Commerce Auditorium in Municipal Building, Fourth and Cincinnati.

Western Petroleum Refiners' Association at Mid-Continent Oil and Gas Association Offices, Cosden Building, Fourth and Boston.

Program

1:00 p. m. "Are Present Prices, Based on Gravity, Equitable When Compared with Yields?"—R. R. Irwin.
"Refinery Processes and Yields from Various Grades of Crude"—Fred Koontz.
"Outlook"—F. A. Pielsticker.
Meeting of Board of Directors.

Other Events Scheduled

9:00 p. m. Formal reception for foreign and American delegates to the International Petroleum Congress. Tulsa Country Club. (By invitation only)

Wednesday, October 10, 1923.

8:45 a. m. Opening of Exposition Gates.
9:00 a. m. International Petroleum Congress at Convention Hall, Exposition Grounds of Program for International Petroleum Congress.
9:00 a. m. Address by Julius A. Germany—"The Independent Refiner."
9:30 a. m. Address by Dr. Bennett Chappel of the American Rolling Mill Company—"Human Contact and Fellowship in Business."
10:00 a. m. Address by Rear-Admiral J. K. Robison, Chief of Bureau of Engineering, U. S. Navy—"Petroleum in the Navy."
10:30 a. m. Address by J. Cueva Garcia, Delegate from Ecuador—"Oil in Ecuador."
11:00 a. m. Address by George Anagnostache, Delegate from Roumania—"Nationalization of Petroleum in Roumania."
11:30 a. m. T. O. Chu, Delegate from China—"Oil fields in China."
12:00 m. Congressman E. B. Howard—"Legislation and the Oil Industry."
12:30 p. m. Adjournment for Group Luncheons.
1:00 p. m. KING PETROLEUM'S PARADE. (See Parade Route elsewhere)
3:00 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
8:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.

(Program continued on next page)

Program For The Exposition And Congress—(*Continued*)

Conventions

Second day meeting of Western Petroleum Refiners' Association, at Federal Court Room, Post Office Building, Third and Boulder.

Program

"Sales"—Myers Gross.

"Traffic"—P. H. Miskell.

"Production Costs and Relation of Producer to Refiner—W. S. Hamilton.

Meeting of Executive Committee.

Annual Mid-West District Conference of the Retail Credit Men's Association at Episcopal Church, Fifth and Cincinnati.

General Standardization Committee on Rig Irons at Carnegie Library, Third and Cheyenne.

8:00 p. m. Mid-Continent Oil and Gas Association Banquet at Hotel Tulsa.

Program

"Government and the Oil Industry"—Judge C. B. Ames.

"Economics and Legislation"—Hon. Thos. P. Gore.

Roll call of the Oil States of the Mid-Continent Field.

Oklahoma, Judge John J. Shea; Texas, J. D. Collett; Louisiana, F. M. Witherspoon; Arkansas, W. H. Rector.

Technical Club of Oklahoma.

Program

Headquarters in Scientific and Technical Division at Exposition Grounds all week.

Formal Opening of the Technical Department of the Tulsa Public Library on second floor of Library Building, Third and Cheyenne, from 4:00 p. m. to 6:00 p. m. Wednesday, Oct. 10.

Refreshments will be served during this period.

Everyonei nvited.

Association of Natural Gasoline Manufacturers at Chamber of Commerce, Municipal Building, Fourth and Cincinnati.

Thursday, October 11, 1923.

8:45 a. m. Opening of Exposition Gates.
9:00 a. m. Southwestern Business Congress in Convention Hall at Exposition Gounds.

Program

9:15 a. m. Opening of Session.
9:30 a. m. Invocation by Reverend Rolfe P. Crum.
9:50 a. m. Address by Dr. Bradford Knapp—"The place of Agriculture."
10:15 a. m. Address by Col. Clarence Owsley—"Financing Agricultural Products"
10:45 a. m. Address by Mr. James R. Howard—"The New Epoch and American Agriculture."
11:15 a. m. Address by Mr. W. B. Storey—"Transportation With Relation to the Development of the Southwest,"
11:45 a. m. Appointment of Committees.
12:00 m. Adjourn to Group Meetings.
12:15 p. m. Group Luncheon Meetings.
2:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
8:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.

Conventions

Institute of Petroleum Technologists at High School Auditorium, Sixth and Cincinnati Streets.

Program

"Separation and Purification of Liquids by Centrifugation, with Special Reference to Petroleum"—A. F. Meston.

"Centrifugal Removal of Wax from Petroleum Lubricating Oils"—Leo D. Jones.

"Centrifuging Petroleum Refinery Emulsions"—Eugene E. Ayers.

Business Meeting of Mid-Continent Oil and Gas Association at own offices on the fifth floor of Cosden Building, Fourth and Boston.

Mid-Continent Section of American Society of Mechanical Engineers.

Business Session, Auditorium Municipal Building, Fourth and Cincinnati, at 2:00 p. m.

Open Technical Session, Auditorium Municipal Building, at 5:00 p. m.

Program

"Gas Measurement"—H. R. Pierce.

"The Evaporation of Crude Oil"—Chas. P. Buck
"Manufacture of Gasoline by Cracking Heavier Oils"—C. W. Johnson.

During Entire Exposition the Mid-Continent Section of the A. S. M. E. will maintain headquarters at Booth three in the Section assigned to Technical and Scientific Societies.

Southwestern Retail Credit Men's Association at Episcopal Church, Fifth and Cincinnati.

State Junior Chamber of Commerce at Municipal Building, Fourth and Cincinnati.

Other Events Scheduled

Smoker and reception to visiting Knights, Knights of Columbus, Club House, 604 South Frisco.

Friday, October 12, 1923.

9:00 a. m. Opening of Exposition Gates.
9:20 a. m. Southwestern Business Congress in Convention Hall at Exposition Grounds.

Program

9:30 a. m. Address by J. F. Owens—"Public Utilities and the Development of the Southwest."
10:00 a. m. Address by Carl F. G. Meyer—"Merchandising and Distribution in the Southwest."
10:50 a. m. Address by Chancellor E. H. Lindley—"National Affairs and the Southwest."
11:30 a. m. Reports of Committees, and election of officers.
12:00 m. Adjournment.
12:15 p. m. Group Luncheon Meetings.
2:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
8:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.

Conventions

Institute of Petroleum Technologists at High School Auditorium, Sixth and Cincinnati.

Program

"Electrical Treatment of Cut Oils"—E. O. Sanguinet.

"Evaporation Losses"—J. H. Wiggins.

"Evaluation of Casinghead Gas"—O. U. Bradley.
"Explorations for Petroleum in the United Kingdom"—E. L. Ickes.

Southwest Retail Secretaries' Association at Episcopal Church, Fifth and Cincinnati.
Program of Addresses from 9:30 a. m. to 5:00 p. m.

Other Events Scheduled

Foot ball game at McNulty Park, Tenth and Elgin Streets, at 3:00 p. m. University of Tulsa vs. Arkansas Agricultural College.

Saturday, October 13, 1923.

9:00 a. m. Opening of Exposition Gates.
1:00 p. m. Merchants' Parade.
3:00 p. m. World's Hippodrome in Convention Hall at Exposition grounds.
8:15 p. m. World's Hippodrome in Convention Hall at Exposition grounds.

Other Scheduled Events

Queen's Coronation and Ball at Tulsa Country Club at 9:00 p. m. (Invitation only)

Sunday, October 14, 1923.

10:00 a. m. Opening of Exposition Gates.
2:15 p. m. World's Hippodrome in Convention Hall at Exposition Grounds.
8:15 p. m. Farewell Performance World's Hippodrome at Convention Hall in Exposition Grounds.

Oil Burners Multiply; Builders Organize; Laboratories Give Service

CHICAGO, Sept. 25

UNPRECEDENTED production of oil in 1923 and the consequent drop in prices all the way from the well to the consuming public has brought the oil burner manufacturing industry up to the fall season with a marvelous business in prospect. This opportunity is one which brings a second-hand benefit to the oil industry, at a time when it will be welcome in most sections.

The manufacturers of domestic burners are awake, and in some neighborhoods it must be acknowledged they are making the oil men hurry to keep up with them.

The household burner business is no longer an infant industry. It is more than a year old as a competitive game. But most of the now well-known burners were heard of first, about this time last year. The builders have had a winter in which to watch their operation and a summer in which to improve the same. This current fall has been fruitful in selling and installing. Many factories are behind with their orders, and the business has only started to grow.

Manufacturers Organize

Recognizing the need of mutual acquaintance in the industry, the need of co-operation in procuring fair and uniform legislation in widely separated towns and states, and the need of a code of marketing ethics, the industry has organized. The American Association of Oil Burner Manufacturers was formed on Sept. 7 at the Congress hotel, Chicago.

Thirty-five firms were represented at the meeting. The organization started with 20 members from scattered points in the United States and Canada. The membership fee is $200 a year.

Aside from meeting, electing officers and directors, outlining a plan of operation and getting committees started to work, the new association did one especially significant thing. It invited a representative of Underwriters' Laboratories to sit in on the meeting, and the institution had a representative present. By this slight formality the new organization showed that its members are interested in safeguarding the property of the public as well as in promoting business, framing desirable legislation and making competition pleasant.

Underwriters' Laboratories

For those who do not know about Underwriter's Laboratories, it is probably the most effective agency in the world, whose sole purpose is to protect the buying public against hazards. The institution has its home office at 207 East Ohio st., Chicago, where the plant and equipment represent an investment of about $225.000. It employs close to 150 persons, most of whom are highly skilled technicians.

And yet the laboratories never earned one cent for anybody directly. It is maintained by the National Board of Fire Underwriters, "for Service—not Profit." The nature of the service it is supposed to render the public is clearly defined, and work of the specified character will be performed for anybody who will pay the cost of it.

Underwriters' Laboratories is a corporation, chartered in 1901 by Illinois and is authorized to maintain laboratories for examining and testing mechanical devices, and to enter into contracts with owners and manufacturers of such appliances, respecting their recommendation to insurance organizations. Its standards and recommendations are recognized by authorities the world over.

Burners are Listed

Several burner manufacturers have applied to the Laboratories to have their products tested and listed among devices which have been examined there and found to comply with standards. Tests and applications for tests are confidential and are made only at the request of the manufacturers themselves.

Burners actualy listed are eight in number and are as follows:

Caloroil and **Caloroil Type A.** Made by the Caloroil Burner Corp., New York, N. Y.

Combustion—"Type C." Manufactured by the Combustion Co., Chicago, Ill.

Kleen Heet. Made by the Winslow Boiler & Engineering Co., Chicago, Ill.

Lillibridge "Types 38-D, 68-D, 99-D, and 9-11-D." They are made by the Lillibridge Heating Corp., Hutchinson, Kan.

Nokol. Made by the American Nokol Co., Chicago, Ill.

The "Quinn." Made by the Quinn Oil Burner Corp., Port Richmond, Staten Island, N. Y.

Scott-Newcomb. Made by the Home Appliance Corp., St. Louis, Mo.

Type 22. Made by S. T. Johnson Co., San Francisco, Calif.

All of these are designed for domestic use except the last one, which is intended to be handled by an expert attendant.

In performing the function for which it was organized, the Laboratories do no advertising for themselves nor the manufacturers whose goods they examine. None of the authorities at the Laboratories will answer the popular question, "What is the best burner?"

Failure on the part of a manufacturer to apply for a test is not necessarily a reflection upon the product he turns out, so undoubtedly there must be many a good burner not listed. On the other hand, in listing a burner the Laboratories do not single it out as a perfect machine, suitable for all work, adapted to every installation, and fool proof. Listing a burner means simply that "this device has been tested and examined in the light of its own proposed usage and found to comply with underwriters' standards."

The burner business has grown and types and brands of burners have multiplied. In the issue of Oct. 4, 1922, **National Petroleum News** carried a list of 70 manufacturers of fairly well recognized burners. L. H. Van Ness of the Federal Gauge Co., Chicago, an associate member of the new association of burner men has an incomplete list of burner makers in the United States. The list now has about 200 names and is growing at the rate of five a week. In other words, the Federal Gauge Co. finds the name and address of some new oil burner manufacturer almost every working day.

Wise and Otherwise

Burners are being made by all classes of establishments. Efficient factories with well equipped machine shops, research laboratories and capable engineers, are turning out oil burners. So is the village smithy which "under the spreading chestnut tree" etc. Some of these machines are good and some are not, and some of the things made by the village blacksmiths are just as good as some of the others perhaps. **National Petroleum News** is often asked by oil jobbers and prospective consumers of household fuel oil—"What is the best burner?" The question cannot be answered. Even Underwriters' Laboratories with a strong staff of technical experts will not answer that question after months of investigation. Indeed the word "best" means something different to each inquirer, because the needs of each are different just as furnaces are different and houses to be heated are different. The choice of a burner is a decision made by a buyer, usually influenced by the seller.

Maximum Far Away

The rapidity with which manufacturers are turning out oil burners is astonishing, but the work is so new and poorly organized that estimating the number of installations amounts to making a useless guess. However it is said that three different firms are rapidly approaching the 10,000 mark. That does not include the output of the 200 or more smaller manufacturers. There are more than 50 oil burner agencies listed in the Chicago telephone directory. and a good portion of them have their plants in Chicago.

The burner marketing field is virtually untouched, however. Every manufacturer is in a position to sell more burners than his plant will turn out, because they are so popular at present oil prices. The point of saturation on oil burners is far away. One survey made by a private insitution leads to the estimate that there are now seven million homes in America, equipped with electric light and power which have no oil burning equipment. And there are ways of burning oil without electric power. But the most generally used household machines vaporize their oil mechanically, with electrically driven machines.

Inasmuch as the field is wide open and the public eager to supplant coal, competition is not keen, and there is really no occasion for slanderous and destructive sales methods. Still, it is commonly reported in the industry that bad selling methods have been used,

burner salesmen spending more time fighting competitors than boosting their own business. This is not even profitable, when public confidence in burners in general will bring more sales than any other form of trade promotion. The present enemy of the burner business is a false popular belief that oil is not safe fuel.

Overcoming the superstition that oil is especially hazardous as fuel, is one of the principal aims of the association of manufacturers, and it is a work in which the oil industry can help a great deal. It is, however, a work in which the Underwriters' Laboratories will do more good than any other element, because its purpose is to bring to the user the best obtainable opinion on the merits of devices in respect to life and fire hazards. For oil burners listed and recognized as complying with underwriters' standards of safety, it should be comparatively easy to overcome fear in the minds of prospective users.

Aid to Development

Manufacturers who want the opinions of the engineers at Underwriters' Laboratories in regard to their products may expect the institution to give their product thorough investigation with reasonable dispatch. The plant recently has increased its capacity for testing burners in proportion to the demands which the industry will probably make upon it. Of course, the time required depends wholly upon circumstances and the nature of the machine, and the expense of conducting such a test is ordinarily in proportion to the time consumed.

The first move on the part of a manufacturer in getting his product tested, is to write a letter to Underwriters' Laboratories outlining the nature of his merchandise and the purpose of it.

As soon as that is done, the manufacturer is sent an application blank and at the same time told how much of an advance fee will be required of him to show good purpose. His application is submitted, accompanied by the required deposit on payment and then an appointment is made to talk matters over—sometimes of course, all necessary discussion can be handled by correspondence. The applicant can watch the tests if he wants to, but nobody else may see them, without the owner's consent.

Competitive conditions make it necessary sometimes to debar manufacturers of certain types of goods from certain sections of the Laboratories while tests are being made on competitors' devices. When an investigation is made of a burner (or any other machine for that matter) and it does not come up to standard requirements of safety, the manufacturer suffers no humiliation. He alone is told of the shortcomings of his product. The analysis of the device is written and submitted to its maker and from that analysis he can correct its weaknesses in future products and apply again for a test if he so desires.

Burner Tests Thorough

Investigations of burners and reports thereon cover their construction, operation, maintenance and installation. All tests contemplate use in hot air furnaces, for those are thought to be the most severe on burners. They are made with oil of the identical gravity which the burner is represented to use. Oil is tested carefully before it is used in testing a burner, and often oil has to be discarded for unfitness. Some barrels have been found to vary 50 degrees in flash from the top to the bottom of the drum.

If the American Association of Oil Burner Manufacturers encourages the adoption of underwriters standards, as some of the members expect, the problems of the oil industry will be greatly simplified. For then each burner, as soon as it is listed, will carry with it public notice of the character of oil required to make it operate best, and will also carry its own mark of reasonable safety to its users.

Wallace C. Capen, of the Home Appliance Corp., St. Louis, is the president of the new association, and the secretary is Leod D. Becker, editor of Fuel Oil, Galesburg, Ill. Membership is confined to manufacturers of oil burning devices either domestic or industrial. Manufacturers of equipment used in connection with oil burners are admitted to associate membership. Associate members are entitled to a voice in meetings but not a vote in the affairs of the association.

Vice presidents are Ernest H. Peabody, Peabody Engineering Corp., New York; E. G. Rhodes, Winslow Boiler & Engineering Co., Chicago; A. M. Lockett, A. M. Lockett Co. Ltd., New Orleans; J. T. Vorhies, the Coen Co., San Francisco, and G. S. Baldwin, the Fess System, Toronto, Ont. The directors are as follows:

Edward P. Bailey, National Airoil Burner Co., Philadelphia; John Scheminger, Jr., Aetna Automatic Oil-Burner Inc., Providence, R. I.; C. E. Bird, Bird Oil Burner Corp., Minneapolis; W. R. Ray, Ray Manufacturing Co., San Francisco, and B. M. Oliver, Oliver Oil-Gas Burner Co., St. Louis.

Will Visit 'em All

CHICAGO, Oct. 1.—Officers and representatives of the Spencer Petroleum Co., are going to make the rounds of all the conventions which are especially numerous this month.

R. D. Rankin, manager of the Kansas City office is in Chicago for the meeting of the American Oil Men's Association this week.

As soon as that is over Frank E. Spencer will leave the city for Tulsa where the International Petroleum Congress occupies the second week of the month. He and Vice President H. Jensen both will be in Milwaukee to the National Petroleum Marketers Association meeting, Oct. 23 to 25.

TULSA, Sept. 29.—A. C. Holmes, traffic manager of the Empire Refineries, Inc., is back in Tulsa after his operation for appendicitis at a Boston hospital. He is spending a part of the day at his desk and the remainder at home while he is gathering strength.

TULSA, Sept. 29.—J. S. Cordell, sales manager of the Empire Refineries, Inc., has just returned from a trip through the northern and eastern marketing states. He was on the road visiting jobber customers for about three weeks.

St. Louis Again Gets Institute Meeting

NEW YORK, Sept. 27.—The annual meeting of the American Petroleum Institute will be held in St. Louis again this year, the board of directors decided at a special meeting held here Sept. 24. It will be in the Statler Hotel there the second week in December, exact dates and program to be announced later.

This is the first time in the history of the Institute that a city has been selected as the location for a second meeting. The first general meeting was held in Washington, the second in Chicago and last year the meeting was in St. Louis.

At the same meeting of the directors it was decided to appoint a sub-committee to study the utilization of fuel oil and distillates. The sub-committee will report to the board at the annual meeting whether a program to further develop the use of these products should be adopted by the Institute.

It was also voted to request the co-operation of the entire oil industry in collecting and disseminating currently the facts as to production, consumption and storage of petroleum and its products and to appoint a committee to study production and conservation of petroleum.

Summer and Winter Gasoline Vary Less

WASHINGTON, Oct. 1.—Summer gasoline and winter gasoline are becoming more and more alike, states the Department of the Interior as the result of a survey recently made by the Bureau of Mines of the motor fuels sold in various cities of the country. This seasonal variation in the characteristics of summer and winter gasolines, though still present, has nearly reached an apparent state of minimum fluctuation, the bureau found.

The survey just completed is the eighth semi-anual motor gasoline survey made by the Bureau of Mines. Gasolines were tested as found in the markets of the 10 following-named cities: New York, Washington, Pittsburgh, Chicago, New Orleans, St. Louis, Denver, Salt Lake City, San Francisco, and Bartlesville, Okla.

The present survey shows an interruption in the apparent tendency toward greater uniformity in the character of gasolines marketed in various sections of the United States, which had been indicated in the surveys made from April 1917, to January, 1923, and which had been arrived at by averaging the end points of the 10 per cent of the least volatile and most volatile samples of gasoline. The difference in average end points, which amounted to 115 degrees in April, 1917 had decreased to 54 degrees in January, 1923, and rose to 71 degrees in the surveys just completed.

Comparison of the July, 1922, and July, 1923, survey show, on the whole, very little difference in the boiling point range of the gasoline sold during July of last year and that sold during July of this year.

Of the 158 samples collected, 109 failed to meet the Federal specifications revised Oct. 21, 1922. The departure from Federal specifications in the majority of samples analyzed does not, however, exceed a few degrees.

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Tank Wagon Structure Stays Fickle Since Big Reductions

By Ward K. Halbert
STAFF REPRESENTATIVE

CHICAGO, Sept 27

PRICE cutting, in the form of an epidemic, has been spreading over the country for the past month. It has invaded the principal cities of the United States and is causing major operators a great deal of concern. This uneasiness in business, due to the unaccustomed "activity" in the tank wagon market, is developing a problem to marketers and distributors of importance, regardless of whether their operations are local or national in scope. Some influential agencies are showing a tendency to aggravate the condition while others are busying themselves to remedy it.

The 10 states in which Standard Oil Co. of Indiana is the chief market factor, have suffered probably more than any of the others but the price-cutting contagion has not confined itself to them. Since Aug. 14, when the 6.6-cent gasoline tank wagon price reduction went into effect generally over Standard Oil Co. of Indiana territory, prices have been reduced by Standard Oil Co. of New York, Standard Oil Co. of California, Standard Oil Co. of Kentucky, Magnolia Petroleum Co and others. But that is enough to show there has been no territorial limitations.

Average 16 Cents

Arbitrarily selecting 30 well distributed towns, figures were compiled recently indicating that the average tank wagon price of gasoline in the United States is close to 16 cents a gallon. This price, it is said, is 5.3 cents under what it was at the height of the 1923 motoring season and about 3.3 cents below the average on Aug. 15, (about the time of the big general cut). Although it is impossible to make anything better than an estimate by comparing figures in a selected list of cities, nevertheless it is certain that retail prices of gasoline have continued to slide since the major reductions of about six weeks ago.

Following out its policy of not allowing any Independent to sell a motor fuel cheaper than Red Crown gasoline, Standard Oil Co. of Indiana has not missed many days since Aug. 14, meeting a reduced price at some city, village or hamlet in its territory. Possibly price cutting was just as prevalent before that time, but it was not so suicidal. Natonal Petroleum Marketers Association, of which L. V. Nicholas is president, has come out strongly in its weekly "Trade Bulletin" urging its membership to adhere to tank wagon prices established by Standard.

Price is Correct

In the bulletin it is pointed out that the association did advise its membership a few weeks ago to urge cuts in tank wagon prices to a point where they would be in line with costs, but declares that further reductions brought on now by aggravating the competition can result in no good. Mr. Nicholas says prices ought to be stable, that somebody ought to have the responsibility of establishing them, and that no firm is better fitted, to "mark up" the tank wagon prices, than Standard, because that company sells goods in the most places and has contract with the most competition.

Among the important price reductions recently were the 2-cent decline in Detroit, Sept. 28, and one of the same size in Des Moines on Sept. 13. Both were made in meeting competition. Some towns of less importance including Robinson, Ill., had reductions of 2.4 cents on Sept. 6. There the reduction was to meet the competition of natural gasoline, blended with keorsene, which has been made in that neighborhood and sold locally at reduced prices for a number of years, by a number of companies including the Ohio Oil Co. At all three of these points the tank wagon price of gasoline is within one tenth of a cent of the kerosene tank wagon quotation.

Gov. McMaster Again

The original general decline in this territory was not precipitated by cuts of Independents, at least not directly. Entrance into the gasoline business by state governmental authority, and automobile clubs demanding cheaper goods, started the price down. When Gov. W. H. McMaster of South Dakota began selling gasoline at 10.6 cents under the service station price of Red Crown, through a highway department pump early in August, Standard met that retail price and made the tank wagon price the same as the service station throughout the state. In the last six weeks conditions in that state have not changed for the better.

According to press dispatches, Gov. McMaster put on overalls in Rapid City, S. D. on Sept. 4, and in company with some state park employees sold gasoline from a highway department tank truck in competition to local curb pumps, there being no service station in town. Rumor has it that the garage men of that town made a price of their own because they could make no money on gasoline with the tank wagon and service station price both 16 cents. They decided to take a 4-cent margin, recognizing the 16-cent tank wagon price and selling to the trade at 20 cents. It seems the governor warned them to cut their price to 18 cents and they did not comply. But most of them went to 18 cents under the pressure of the chief executive's competition, it is said.

Investigations Busy

Vice President John D. Clark of the Standard of Indiana who also is assistant chairman of the board of directors, has been kept busy for several days answering calls from state authorities conducting investigations of the gasoline price. He appeared last week before the Minnesota department of agriculture which conducted an investigaton at the instance of the governor of the state. And on Sept. 27 he testified before the Wisconsin department of markets headed by Edward Nordman. In Madison and also in St. Paul, Mr. Clark stated that gasoline was selling below the cost of production and distribution but that advances were unlikely in view of the prevalence of price-cutting competition. In stating that other reductions were likely in the meeting of competition, Mr. Clark only reiterated the company's long-established policy.

The Minnesota investigation is over. The result of the brief inquiry will be presented before the national investigation which starts in Chicago, on or about Oct. 15, under the guidance of Attorney General O. S. Spillman of Nebraska. Gen. Spillman was chosen to conduct an inquiry into gasoline prices during a convention of the National Association of Attorneys General in Minneapolis on Aug. 27. There the attorneys concluded state investigations were not comprehensive enough and combined their several inquiries, each offering Mr. Spillman assistance in some form.

The Wisconsin investigation however is just started. The office of the attorney general in that state, which is the legal representative of the department of markets, has employed the services of Gilbert E. Roe. He is special deputy to carry on the quiz. Mr. Roe will be recognized by most oil men as the man who did the questioning during the La Follette investigation in Washington.

The Detroit Problem

The details of how the price war began in Detroit are not generally known, although it has been published in a number of places that Independents there have been selling gasoline lower than Red Crown for several days. Regardless of the immediate circumstance, Detroit seems a specially designed spot for a price war at the present time, for the reason that highly competitive conditions exist in the refinery market there.

The secret of the cheap refinery prices in Detroit is freight rates. As it happens the Illinois Central R. R., properly appreciative of its oil tonnage, makes a rate out of New Orleans to points north of the Ohio river and east of the Illinois-Indiana state line, which roads serving Group 3 can not, or do not, meet. Gulf coast refineries not now getting all the Mexican crude they need to fulfill contracts are running on California oil brought through the Panama Canal and are consequently turning out more gasoline, which they sell as best they can under present marketing conditions.

The advantage in favor of New Orleans is between one-half and three quarters of a cent a gallon, so Group 3 refiners have to meet Gulf coast quotations if they hold their business in that area. Instead of accepting this advantage to partially offset the present low tank wagon market, dealers in

Detroit now are passing that temporary profit along to the consumer.

Let Them Go In Peace?

A few jobbers have expressed themselves as being satisfied to see highly competitive conditions exist for a while. They contend that many new and inexperienced men came into the oil business a few months ago, tempted by wide margins which they did not recognize as temporary. They say these same newcomers started business "on a shoe string", divided the gallonage of old and established oil firms, took the "velvet" while it lasted, got business by cutting prices, built up unjustified overhead expense in distribution, brought about the present demoralized condition, and must suffer for it.

The prevailing opinion among experienced oil men is that they who know the business will weather the storm, and the rest will not, unless they walk circumspectly. Systematic operation, energetic merchandising, and economical buying and selling will permit any jobber to make a little money at present prices if he has any considerable amount of gallonage to start with, they say, and if he can not run a business economically in hard times he has no right to jump into it "when the getting was good," so let him go.

The accompanying photo shows a scene during the opening day at a new Crew Levick station at 31st and Spring Garden streets in Philadelphia on Sept. 15. Nearly 2,000 cars were served with 9570 gallons of gasoline during the opening day. During the busiest periods the line extended for two blocks on the street shown in the right of the picture.

The station is a small white glazed brick building and a 40-foot concrete driveway, on which four lines of cars were handled without a blockade or accident on opening day. The equipment consists of six hydraulic outlets and there are two drain pits in the drive. The construction required but 59 working days.

Oil Inspection Fees In Florida Collected In Advance

HOW oil inspection operates in Florida has been set forth in the accompanying statement from Cade E. Shackleford, chief clerk of the division under William A. McRae, commissioner of agriculture. When the inspection law was passed in 1919 no provision was made to cover expenses in connection with organizing the inspection division and getting it started.

At a conference with oil men it was decided the oil companies should pay their inspection fees of an eighth cent on gasoline, kerosene and signal oils a month in advance. This method has been continued, as Mr. Shackleford explains. He says the entire expense of the oil inspection division from time of organization to the end of 1922 was $47.206, leaving a net revenue of nearly $258,000 which goes to the state road department.

"During the 1919 session of the legislature, there was enacted the "Gasoline Inspection Law". The operation of the law was placed under the direction of the Commissioner of Agriculture who was empowered to formulate rules and regulations to govern the operation of the law.

"The law imposed an inspection tax of one eighth of a cent on each gallon of gasoline, kerosene and signal oils sold in the state, but made no appropriation for the expense incident to the operation of the law. To overcome this handicap, the commissioner called a meeting of the representatives of the oil companies operating in the state. An arrangement was entered into by which advanced payments of $6000 made on anticipated sales, which enabled the oil division to begin operations despite the fact that no appropriation had been made to meet the expense of operation.

"The method pursued in collecting the tax, is, the companies at the end of each month make up a statement of the gallonage sold during the month which they send in accompanied with cancelled Inspection Stamps to cover said gallonage, which stamps have been bought in advance. It sometimes happens that the amount of stamps on hand are not enough to cover the sales made, in which event, a check is mailed to make up the difference.

It was the intention to place on each container shipped into the state a sticker, but these were so easily detached that a stencil with the words "Florida Tax Paid" was substituted. It is the custom of operators who ship in car load lots, to send to the office of the oil division as soon as car is oaded, a shipping notice, test report and check to cover gallonage in car. Shipments in tank car lots and small containers will run not over 20 per cent of the total sales.

Florida has numerous seaports and the bulk of petroleum products marketed in the state comes to these ports, where the larger companies have large storage tanks, from which tank car shipments are made to contiguous territory. Samples are taken of cargoes as they arrive, advance notice being given of expected arrival. In this way the quality of the product is known in any given territory. About 80 per cent of all oil and gasoline marketed in the state is transported by water, which places Florida in an advantageous position as regards freight rates.

"In addition to the collection of samples, it is the duty of the inspectors to inspect and test all self-measuring gasoline pumps. To do this accurately and correctly, they are equipped with measures that have been tested, sealed and certified to by the U. S. Bureau of Standards. This feature is very popular with the people of the state as it assures them of getting their money's worth when buying oil or gasoline.

"The growth of the oil business in the state is steady, increasing at the rate of about 10,000,000 gallons yearly. The figures given show how rapidly the increase has been. For the year 1919, four months of which the law was in operation showed a gallonage of 18,141,490 gallons, with receipts from oil inspection of $22.-147.06. For 1920, the gallonage was 66,-222,432 gallons with receipts of $82,484.60. For 1921, the gallonage was 75,469,718 gallons, with receipts of $94,277.32. For 1922, the gallonage has been 86,152,002 gallons, with receipts of $106,183.10. Total gallonage since the beginning of operations Sept. 1919, to Dec. 31st, 1922, is 245,985,642 gallons with receipts of $305,092.12. The expense during this whole time for office expense, laboratory expense and analyst and three inspectors has been $47,206.62, leaving a net revenue to the state of $257,885.49, which according to the law, is turned over to the State Road Department to be used on the public roads.

"The entire personnel of the oil division under the able direction of the Commissioner of Agriculture, have labored incessantly to make the oil division and operation of the gasoline inspection law satisfactory to the people, and without friction or unfairness to the oil companies. We have so far succeeded, that we have never had to resort to the courts to enforce the law or the rules and regulations promulgated by the Commissioner of Agriculture.

"The specifications of gasoline and oils marketed in the state are the same as recommended by the Bureau of Mines and any changes made by the U. S. Bureau of Mines in the specifications, are immediately adopted as a part of the Florida specifications.

THE EDITORS' VIEWPOINT

The Cradle Of Courage

IN A NEWSPAPER report on the wreck of the Burlington passenger train just out of Casper in which a number of lives were lost, the following paragraphs appeared:

"John Cristie, an oil driller of Glenrock, was the outstanding hero today of the wreck. Cristie was in the smoking compartment of the Casper Pullman car when the train plunged off the bridge.

"Realizing the situation, Cristie cut a bell cord, climbed to the top of the Pullman car, which was partially submerged in the raging torrent of water and threw it to the bank of the river, where passengers in the intact cars tied a heavy rope to its end. Pulling the rope back to the car, Cristie aided five passengers to climb along the rope hand-over-hand to safety on the east bank. Those rescued by Cristie were Mrs. Riley Brown and two children, of Casper; Mrs. Eva Boyer, of Glenrock and an unidentified man."

A citation, surely, as imposing as many of those which recounted deeds of valor in France. But those who know the men whose lives are spent in development of oil fields are not surprised that Driller Cristie arose to the emergency. They would be more surprised if he had failed to make the effort. He has been accustomed to emergencies ever since he started drilling, for the necessity for hair-trigger thought and action is so apparent in few other fields of human endeavor.

Driller Cristie's heroism was directed by a mentality which has appraised danger many times. His fund of courage may be no greater than that of many another man, but, without ever having seen Driller Cristie even, we feel certain he has learned to apply his courage swiftly and certainly through that eternal vigilance he has exercised when on "tower" where danger is ever present.—L. E. S.

The Wigglestick In Germany

THE old familiar divining rod, or witchstick, has caught on in Germany, a returning American geologist brings back word, and has been dignified with a long name of Teutonic origin, "wunschelruten", and has even reached the height of having societies organized to deal with the problems it brings to the German mind. The most formidable of these, by length of name, is the Verband zur Klarung der Wunschelrutenfragen,—Union for the Explanation of Wigglestick Problems.

Those familiar with the way the Teutonic mind works can well imagine the grave and ponderous discussions this instrument brought forward, the arguments pro and con and the delving into scientific lore for something in the past upon which to peg this baffling new appliance.

The argument must have rocked the scientific mind to its foundations, for it is to be noted the German Geological Survey ran a series of tests, three wigglestickmen taking part. One used three rods of different metals, one for first determinations and the two others to polish off the job. The second cut a forked stick as his wand. The third used no rod at all, but received "positive" radiations in his left arm and "negative radiations" in his right, using for corroboration a pendulum which, he claimed, described curves for different substances.

Five different routes were laid out and each wigglestickman was sent over them separately, with two geologists to record his findings. With an astuteness hardly to be looked for in this race the first test was to find water in an impermeable clay. Abundant water was indicated in the middle of the region. Other tests were for salt potash and brown coal and for faults in the Magdeburg basin. The report says succinctly "a plethora of faults was reported except where the strongly faulted edge of the Magdeburg basin was known to be."

Withal, however, the case of the wigglestick perhaps could not be better and more definitely disposed of in any language than in the conclusion of this report to the effect that, "if there were something to the wigglestick, its failure at times to register the presence of a substance might be explained, but that its brilliant registering of substances not present could not be."—V. B. G.

His Compliments To Oil Trade

A. T. SEYMOUR, who bears the title of Assistant to the Attorney General of the United States, made a speech before the national association of state attorneys general in Minneapolis on Aug. 27. One section of his address was entitled "Gasoline,", and Mr. Seymour started it off by saying, "We are all entitled to participate in the enjoyment of the products of our natural resources and the fruits of our industries."

Then in the next sentence but one he says production of gasoline for the first six months of 1923 equalled the production for the entire year of 1922. Knowing how far off this is from the facts and how easy it would have been to secure the exact figures from the Bureau of Mines, we cannot help but wonder if this statement is to be attributed to the natural resources and fruit of industry of Mr. Seymour himself.

In the next paragraph he says gasoline was selling at wholesale at 20 cents a gallon in New England in July. We presume he means by wholesale price the tank wagon market, for we'd hate to think of a jobber paying 20 cents for his gasoline when California gasoline was selling then for around 13 cents there. But next he says that, while gasoline was 20 cents wholesale in New England, in some places in the west it was 10 cents a gallon. Where, we'd like to ask, assuming he does mean the tank wagon price.

Mr. Seymour went on to tell the state attorneys general, "it is important that every local instrumentality of refining and distributing gasoline should be carefully watched in order that state government may discharge their duties in punishing crimes or preventing illegal practices which tend to deny the people free and full enjoyment of such natural resources," and "the oil industry as a whole is a subject for continuous observation by federal authorities and it furnishes one of the most important subjects of investigation by the department of justice". Our guess is Mr. Seymour ranks horse thieves—or auto thieves in these times—as highly respectable members of society compared with oil men.—V. B. G.

Oil production in California has reached its peak, J. M. Danziger, vice-president of the Pan-American Petroleum & Transport Co., told the newspapers in New York. Then E. L. Doheny, president of the same company, came out and said it hadn't. A vote of confidence in one or the other by the board of directors seems to be in order.

We have a deep suspicion that the secretaries of all the oil associations got their heads together and filled October with so many conventions, expositions, annual meetings and what not that the industry will have to lay off producing and manufacturing for the month completely, and, meanwhile, current consumption will cut down their surplus supplies.

The attorney general of Massachusetts says gasoline is not one of the necessities of life. He should run out of "gas" on a rainy night, eight miles from town, on a road where all the farmers keep vicious dogs.

OIL FIELD SUPPLY TRADE NEWS

Tank Plate Market Stimulated; Pipe Orders Slow

By Special Correspondent

EXCITEMENT is absent from the steel pipe market, particularly as it has reference to oil country goods.

PITTSBURGH, Oct. 2 Jobbers occasionally ask for more tonnage or else that shipments on old orders be expedited, but large tonnage sales and inquiries are for the most part lacking. Small lots are wanted here and there in order to complete projects under way but not much is doing in the way of starting new lines. A number are scheduled for early development in the spring. Practically the only inquiry of size before the trade comes from South America for 25 miles of 10-inch.

This condition leaves the pipe producers throughout the Pittsburgh, Wheeling and Youngstown, O., districts more free to attend to the wants of their jobber-connections on standard merchant pipe, demand for butt-weld sizes being particularly urgent. Pipe makers generally have good order books and are committed for several weeks and in one or two cases several months to come. They continue to operate 90 per cent of capacity on the average.

A sudden spurt in plate buying for western consumption has taken place and most of the 14,000 tons booked in Chicago recently has been for oil storage tanks. The Pan-American Petroleum Co., awarded 13 100,000-barrel and two 80,000-barrel tanks, for installation in California, the Chicago Bridge & Iron Works, Chicago, being the successful bidder. The Graver Corp., Chicago, has taken several small orders, including 1200 tons for tanks for the Invincible Oil Co., 600 tons for the Utah Oil Co., 3200 tons for the Independent Oil & Gas Co., Delmar Oil Co., Simpson-Fells Co., and the Burt-Franklin Co., all controlled by one interest, as well as 3000 tons for miscellaneous orders from California.

A gas holder at San Diego, Cal., requiring 1200 tons of plates has been awarded to the Stacey Manufacturing Co.

Two or three Pacific coast tank builders have inquired in the Philadelphia district for 5000 tons of tank plates each, but the inquiries appear to cover one job. Eastern mills are able only to operate about 50 per cent of plate-making capacity; in the Pittsburgh district, the average is 75 or 80 per cent. Price weakness is found only in the eastern part of Pennsylvania, where less than 2.40 cents has appeared, one lot of 300 tons being bought by an oil company at 2.35 cents base Pittsburgh.

Pittsburgh district steel sellers stick firmly to the 2.50 cents base Pittsburgh price. The Sun Co., has taken no action there on a small tank inquiry it has out but The Texas Co., has placed a limited tonnage in the east.

Increased demands for tin plate from Japan are current. It is understood that the Nippon Oil Co's. order for 19,000 base boxes placed just prior to the earthquake, has been increased to 47,000 base boxes. This was awarded to a New York branch of a Japanese exporting house which has placed it with an independent export interest.

Inquiries for equipment are growing more limited. Equipment etc., will cost about $300,000 for the new refinery to be built by the Louisville Petroleum Refining Co., Louisville, Ky. on a site it has selected on the Ohio river. The initial output will be about 2500 barrels per day; W. M. Mitchell is president.

Four gas engines, compressors and auxiliary equipment are to be installed by the Empire Companies, Inc., Bartlesville, Okla. It has commenced the construction of a new compression plant at Cambridge, Kan., with a capacity of 40,000,000 cubic feet per day, estimated to cost $90,000.

Supply Trade Personals

BRISTOW, Sept. 26.—Claude Freeland, of the Roland Oil Co., is spending several weeks in Pittsburgh on business for his company.

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TULSA, Sept. 29.—A. W. Swanson, of the Eastland, Texas, office of the Prairie Oil & Gas Co., was a visitor at the company's local offices this week.

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TULSA, Sept. 26.—S. J. Lones, assistant to Denny McMahon, of the Southwestern Petroleum Co., left today for an inspection trip over the company's properties in southern Oklahoma.

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TULSA, Sept. 27.—Bert S. Barker, who was driller of the original Rubana discovery well in Beckham county, spent several days in Tulsa on business during the past week. Mr. Barker reports that operations in Beckham county are pretty generally shut down at present.

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TULSA, Sept. 28.—Marshall Monroe, Tulsa editorial representative for the Oil Weekly, has resigned, and has left for west Texas in hopes of regaining his health. Mr. Monroe was gassed while with the A. E. F. and is still suffering from the effects of it. His place in Tulsa has been taken by A. R. McTee, of Houston.

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ARDMORE, Sept. 26.—Herbert E. Williams, valuation engineer, formerly of Tulsa, has opened an office here, and will specialize on depletion and depreciation work for income tax purposes. Mr. Williams was at one time an assistant valuation engineer in the Income Tax unit, Bureau of Internal Revenue, Washington, D. C.

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HOUSTON, Sept. 28.—G. L. Griffin, district sales manager for the Chapman Valve Manufacturing Co. of Indian Orchard, Mass., left the first of the week for a trip into the home office and other points in the east. Mr. Griffin expects to be gone about three weeks.

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HOUSTON, Sept. 28.—Mark K. Griggs, district sales representative for the Irving Iron Works, returned this week after a three weeks trip in the east. Mr. Griggs spent several days with home folks in Detroit.

P.&R. Corp. Now Has 500 Miles Of Line

CHICAGO, Oct. 1.—The last line in the pipe line between the Salt Creek field and the Producers & Refiners Corporation's 10,000-barrel plant at Parco, Wyo., has been finished, according to announcement made in Chicago. Deliveries have been made through the line since Sept. 10. This and the 30-mile line just finished in Oklahoma connecting the Lyons pool near Wewoka with the West Tulsa plant, brings the P. & R. pipe lines up to a total of 500 miles.

Dubbs Process cracking stills have recently been put into operation at the company's West Tulsa refinery. Installation of the same sort of cracking plant at Parco is under way and the officials express hope of having it operating in a few days.

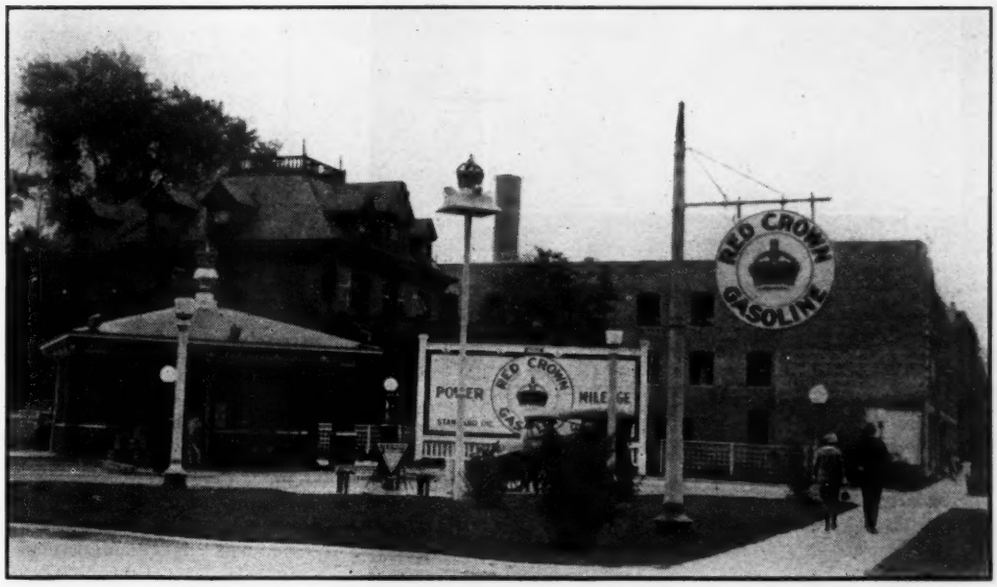
Organize Marketing Firm

TAMPA, FLA., Sept. 27.—The interests headed by W. F. Miller of Tampa, are organizing the Imperial Oil Corp. of Tampa to be capitalized at $1,000,000 and the present Imperial Oil Co.with $100,000 capital will be dissolved. The new corporation which has contracted to handle Sinclair Refining Co. products in this territory, has leased a site at Hooker's Point, near Tampa, and will put existing dock facilities in shape to handle tankship shipments. The site adjoins that of the Mexican Petroleum Co. Tanks for gasoline, fuel oil and other products will be installed. The Imperial is planning to install about 10 bulk stations in the Tampa trade territory. The central plant will have switching connections with the Tampa Northern railroad. Mr. Miller is president of the corporation; W. Murray Allen is vice-president and general manager, and B. L. Hamner, secretary and treasurer.

CASPER, Sept. 29.—The Fargo Oil Co. started running oil last Tuesday through its new line from the Poison Spider field to Casper refinery of the Standard. The company has contract to deliver a million barrels to the Standard.

Theatrical Electrician Plans Lights For Busy Night Station

By Ward K. Halbert
STAFF REPRESENTATIVE



Note—Standard of Indiana station at Broadway and Sheridan road, Chicago. Note how station is dominated by surrounding buildings. Revolving prismatic ball, shown on roof, and swinging sign over sidewalk are designed to attract the motorist's notice before he gets in sight of station itself.

CHICAGO, Sept. 27

WHAT would you do if you owned a convenient service station in a neighborhood of unlimited business possibilities but almost hidden on an unfortunate lot?

The first thought is to move the station but that is not always possible. It was impossible at Fair Oaks and Broadway, in Chicago's thickly settled "North Shore" residence neighborhood, where Standard Oil Co. of Indiana found one of its stations in just that predicament.

Maybe Standard has not worked out the right answer, and maybe it has. The experiment is now under test and is attracting a lot of attention locally. What they did was employ one of the best electric lighting experts in Chicago to install a spectacular silent ballyhoo on the station, which reaches out from the obscure corner and pulls in the trade. Just how much the lighting system has increased sales at this particular station is something the public probably will never know because Standard Oil Co. does not make free with such data, but company authorities acknowledge the station is doing a great deal better.

Stage Light Effect

The lighting expert who planned the strange station lighting is George Stephenson who at one time was in Flo Ziegfield's organization. He planned and perfected all the spectacular lighting which helped to enhance the good looks of the famous chorus in the Ziegfield Follies. He is now the head of the Chicago Stage Lighting Co., and is little known outside of the theatrical profession. Orson Combs of the advertising department of Standard Oil Co. called in Mr. Stephenson's counsel after seeing a gorgeous Christmas tree he lighted at the Armour company's packing plant last year.

Mr. Stephenson says he never lighted a service station before and is not sure he ever wants to again. Each one is a separate problem he says, and the trouble and cost of lighting any station depends wholly upon surroundings. The exact cost of this lighting job is withheld but it ran into the hundreds of dollars, exclusive of the ordinary lights such as are found on most stations expected to do a good business at night. The odd feature of the station is a large revolving globe of prismatic mirrors mounted on top of the station and played on by colored spotlights.

This type of light is not altogether unusual indoors. They are used in theatrical lighting, in large ball rooms and cabarets and similar places. Ordinarily they are not found out of doors and when they are, they must be large and powerful. In street lighting also they must not cause a blinding glare, but at the same time catch the attention and hold it. This ball keeps the station lot, driveways, adjacent buildings and the two streets in front of the station alive with a flood of red and white spots, chasing each other through a dull amber twilight. On top of the globe is a big red crown. If the motorist's eye ever rests on the origin of the lights, it finds the reason.

Is Advance Notice

The station is concealed by adjacent buildings, all more than three stories high. A long line of billboards obstructs the vision from the only direction where there is a vacant lot. The question was not one of accessibility so much as advertisement. The station can be reached in an automobile without any trouble, and without turning any sharp corners. The trouble was, many motorists would not drive into the station simply because they did not have time after they saw it. It was easy to reach if the driver was hunting it, but if he waited until he saw the station it was too late to turn in.

When a motorist sees a service station, several blocks down the street he thinks about his own gasoline tank. It may not be a mathematical calculation of how much fuel he has in it, but he thinks of it long enough to decide whether he wants to turn into that station. If he does, he works his way to the outside of the stream of traffic, in case he happens to be in one, and he slows up his speed to make the turn. On the other hand, if he does not see the station until he is speeding by, it would take a traffic cop to get him off the street. He will turn in at the next station.

Ideal Neighborhood

The station is only a few feet from the intersection of Broadway and Sheridan Road, one of the busiest corners outside of the loop district of Chicago. Broadway is a long, transverse thoroughfare of business traffic with two street car tracks and frequent cars. Sheridan Road is part of the city's boulevard system. It is the street which forms a link in two or three national highways and traffic is restricted to pleasure cars, but passing is perpetual at this point, all day and nearly all night. There is plenty of transient passing business to make a service station pay.

The neighborhood is one from which much business emanates. It is a vicinity of apartment houses and every second resident owns a car—or at least operates one. Within a few blocks is the cen-

Gardner Junior Monarch for Filling Stations and Garages

Several real features — but the chief characteristic of Gardner Garage Compressors is their absolute *dependability.*

THE GARDNER GOVERNOR COMPANY

In **Quincy, Illinois** Since 1859

Chicago Fisher Bldg. | New York Singer Bldg. | Philadelphia 604 Arch St. | San Francisco 505 Howard St. | Los Angeles 409 E. Third St.

Also Houston, Texas

COSDEN & COMPANY

Tulsa, Oklahoma

Manufacturers and Distillers of

High Grade Gasoline - Naphthas
Lubricating and Illuminating Oils

Unexcelled
Producers - Refining - Transporting
Facilities

ter of the night life on the north side of Chicago, the up-town business district. With all of its theatres, hotels, dancing establishments and all-night restaurants, it attracts motoring parties from all over town at all hours between dark and dawn. So a good part of the natural business the station could expect was on the "night shift." There are plenty of locally owned cars, and sufficient daylight traffic, however, to make it a paying day-time station.

There is no alternate location for a station. Most lots in the neighborhood were improved before the station was built. Others are too high-priced to consider in view of any business confined to sales in one sales room. Owners of large tracts would not cut off corners from them at any reasonable figure. In short, real estate prices in this rapidly developing neighborhood still are speculative and prohibitive.

Put Station Over

Taking a station which might have been a great deal better located, and putting it over in spite of disadvantages, is a task upon which many a marketer has taxed his resourcefulness. This particular station required originality and the result is at least something novel. "White Way" light pedestals were erected as far out on the edge of the lot as possible. A handsome circular swinging sign (readable both night and day) was suspended from a bracketed standard over the sidewalk. Every possible hint that paint and light could give were used to carry the message of gasoline and service from the pumps to the street. It is possible for three automobiles to enter the station at once and get service without interference with each other.

The big out-door globe mounted on the top of the station is between 2½ and 3 feet in diameter and contains between 3000 and 4000 pieces of glass. The frame is a specially spun copper globe and the prisms are fastened to it with prongs like jewels are set in a ring. It required more than a month of Mr. Stephenson's time to construct this ornament alone. Although it does not throw the dancing reflections in day time it is just as attractive on a sunny day as under spotlight at night.

The ball is kept turning slowly with a small electric motor under the roof. The spotlights are planted on the roof but down close to the eaves. One might imagine in passing the street that the service station lot would be a confusing conglomeration of light and color, but the motorist, on driving inside, loses the effect altogether. The closer a person approaches the pump stand the less he notices the fantastic shadows. Away up the street, however, a block or two away, where the passengers in an automobile can not even see the station, the shadows playing in the street are the most noticeable things in the neighborhood. Colored spots roll along the asphalt and concrete paving, shine on a wall for a moment and vanish, glitter on the top of a passing automobile, light up car windows and form the most grotesque street scene imaginable.

The closer the customer approaches, the less turmoil of light there seems to be. When at last he looks squarely at the ball from some point in the station driveway it is no more glaring than any of the other lights on the pedestals. The ball appears to weave in-and-out

ZEROS

A complete line of them in the pale and red and filtered pales. .....On contract or immediate delivery, just as you like..... Prices, as attractive as you can get from any refiner.

Old Man Oil *(Himself)* Says

* * *

Now that the football season is here, Guy Champion of Marion, Ill., thinks it might be a good idea to carry a side line of arnica.

* * *

Since the four wheel brake is meeting with such success, C. A. Wilkins is experimenting on the four wheel steering gear over in Omaha. Everybody pray for him.

* * *

In speaking of the term, "viscosity"
A man of very great precocity,
Arose with considerable bombosity
And said, "That word has too much verbosity."
(Poems of E. E. Wissler, Des Moines, Ia.)

* * *

"California may be the Golden State, but its gold don't come to us," is the latest chant of a chorus of Oklahoma producers.

* * *

Louis Grasse has made a standing offer of 10 gallons of gasoline to the first aviator sky writer who writes the name of his home town, Sheboygan, Wis. and spells it right.

* * *

SERVICE

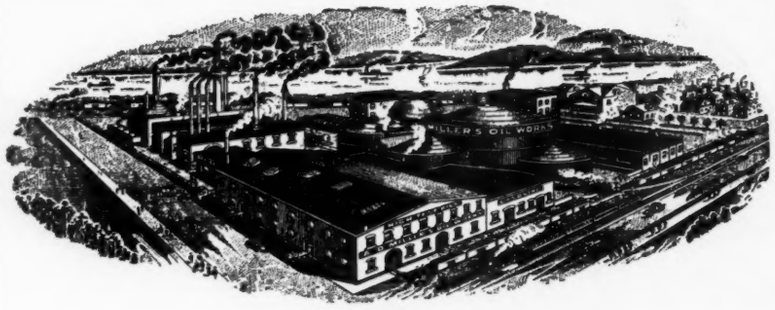
Our thorough service on Zeros is duplicated on any other petrcleum product you may need. Any kind of shipment from can to tank car; your name printed on handsome lithographed containers, rush delivery and all the other attentions of a complete jobbing service.

J. R. Brown Petroleum Co.

Bronoco Products

Motor Oils — Fuel Oils — Gasoline
Naphtha — Greases — Auto Soaps
— *but mostly SERVICE*

Boatmen's Bank Bldg. **St. Louis, Missouri**



"INVINCIBLE"

Motor and Tractor Oils

For The Jobbers

"Still-Blended" Lubricating Oils

For Export and Domestic Trade

We ship in tank cars, drums or wood barrels, either in mixed car loads or less car lots. We blend to meet any requirements.

A. D. MILLER SONS CO.

Pittsburgh, Pa. Established 1862

How to Grease with Less Effort

No. 1 "Valveless" Grease Cabinet

Fibrous grease handled easily. No check valves to get out of order. Grease can't work up handle. Your company's name on it.

Holds 20 pounds.
List price $12.50 each.

THE light, portable Attwood Grease Cabinet makes a friend of the man on the greasing rack. He picks it up, spots it where he needs it, so it's always within arm's reach.

No one likes pulling around a big, heavy portable drum on a hot day or climbing over a greasing rack several times to fill and refill grease guns.

The handy Attwood eliminates all this. It is a great step, time and temper saver. Make it easy for your men to do more work by installing Attwood Grease Cabinets. Equip now.

Manufactured by

Attwood Brass Works, Inc.

Grand Rapids, Mich.

rather than revolve. Rays from the spotlights and flood light never reach the ground. As far as can be determined the lights have no ill effect at all, immediately at the station. From a distance of a few feet they are mildly beautiful. But at a distance of a block they look like a riot. There is now no excuse for any car to drive by at night without being reminded in advance of the presence of a service station.

Auto Production Again Moves Upward

WASHINGTON, Sept. 26.—Production of passenger cars in August was at a higher rate than in July and truck output was almost up to that in July, according to figures compiled by the Department of Commerce from reports of 181 manufacturers of passenger cars, trucks, fire apparatus and street sweepers. Comparative figures for the last three years follow:

Passenger Cars

	1921	1922	1923
January ..	43,086	81,693	*223,708
February ..	68,088	109,171	*254,651
March	130,263	152,959	*319,637
April	176,439	*197,222	*344,475
May	177,438	*232,433	*350,181
June	150,263	263,027	*337,144
July	*165,615	*225,079	*297,257
August	167,755	*249,460	304,010
September	*144,670	187,661	.....
October...	*134,773	*217,493	.....
November	*106,081	*215,284	.....
December	* 70,725	*207,932	.....

Trucks

	1921	1922	1923
January ...	4,831	9,517	* 19,533
February ..	7,830	* 13,290	* 21,961
March	13,328	* 19,919	* 34,905
April	18,070	* 22,486	* 37,718
May	18,070	* 23,948	* 43,228
June	14,328	* 26,171	* 40,819
July	* 11,132	* 21,956	* 30,359
August ..	* 13,391	* 24,601	30,251
September	* 13,975	* 19,333	.....
October ...	* 13,144	* 21,698	.....
November	* 10,480	* 21,803	.....
December	* 8,589	* 20,160	.....

*Revised.

Building Marble Station

MEMPHIS, TENN., Sept. 28.–Standard Oil Co. of Louisiana is building a service station of pink Georgia marble at Union avenue and Marshall chased several months ago for a consideration said to have been $50,000. street, Memphis. The site was pur- The station will cost approximately $30,000, it is said.

The station will have seven gasoline pumps, and oiling and greasing facilities. It is said the station will be one of the most elaborate in the south.

TULSA, Sept. 27.—Edwin P. Day, assistant manager of the Pioneer Tank & Boiler Works, of this city, died last night at his residence. He was 28 years of age. Mr. Day, who had a host of friends in the industry who will mourn his loss, was prominent in fraternal circles, and was a 32d degree Mason, a member of the Akdar Shrine, the Elks. and the Oakhurst Country Club. He is survived by his wife and his father. E. P. Day.

Finds Uniform Cost System Impractical

Staff Special

ATLANTIC CITY, Sept. 27.—General subjects relating to railroad matters rather than a detailed discussion of rates, was the theme of the report of the department of traffic and transportation to the National Petroleum Association.

The department urged all oil companies to give serious consideration to the government's plan to consolidate the railroad systems of the country into a limited number of systems, pointing out the purpose of the consolidation to bring about economy in operation of the roads may be carried to such extremes as to be against the general interests of shippers. "The elimination of freight and passenger trains, reduction of railroad forces, closing of freight stations at competitive points and other economies may result in actual abuse to the shipping public," the report stated.

"Another subject which has been brought to the attention of this department," the report stated, "refers to private coal cars as assigned for bituminous coal mines, 80 I. C. C. 520. The commission in announcing its decision in this case held that the practice of assigining private coal cars to bituminous coal mines in excess of the ratable share contemporaneously distributed to such mines which do not receive such assigned cars is unlawful.

"The case has not up to this time involved private tank cars, but the decision is a dangerous one, and we understand it will be taken to the U. S. Supreme Court for final adjudication. The wording of the commission in this case leaves some doubt as to the right of an owner of private tank cars to emloy same in his service continuously to the exclusion of those less fortunately situated, who do not own a sufficient number of cars, or any cars for that matter, but which cars might be needed in the transportation of goods in interstate commerce by shippers other than the owner.

"Certainly, the decision would have its effect on privately owned tank cars not in service, and if available, the carriers might elect to assign such cars to any shippers for immediate loading. For the commission said:

"' . . . It is the carrier's duty to furnish all facilities of transportation and it cannot permit the presence of any equipment upon its line to work a discrimination as between shippers. . . . When a private car is employed by a carrier in lieu of its own equipment as an instrumentality of transportation it is thenceforth not a private car; it does not regain its status as a private car until, after the transportation is concluded, it leaves the carrier's service.'

"The commission further said:

"'We have held to the central idea that the carrier in permitting the use of the private car, must at its peril see that the use of the vehicle does not permit, excuse, or justify a discrimination, preference, or advantage in favor of the owner of the private car.'

"Your department believes it well to direct attention to the Interstate Commerce Commission Bureau of Statistics report of May 11, 1923, showing estimated freight revenue of Class 1 roads by classes of commodities, on the basis of 1922 tonnage at 1923 rates. This report has been very illuminating to the traffic officials of the railroads in that it shows that refined petroleum and its products ranks, in point of revenue, third in the list, being exceeded only by bituminous coal, and lumber, timber, box shooks, staves and headings, grouped as one class. Such reports as this bring home forcibly to the railroads the desirability of petroleum oil traffic."

Watchfulness Against Fire Hazard Urged

Staff Special

ATLANTIC CITY, Sept. 28.—Particular watchfulness on the part of refiners, not only in guarding against fire hazards but also in maintaining in good state of usefulness all means of fighting a fire once started, was recommended in the annual report of the department of welfare and insurance of the National Petroleum Association, presented by G. B. Hunter, Emlenton Refining Co., trustee in charge.

"Since the last annual meeting there have been an unusually large number of fires in the refining industry, a great many of which were among the members of this association. Some few of these fires were caused by lightning, but most of them were from causes which could have been avoided, or at least controlled. The losses aggregated many hundred thousands of dollars, and if we are to profit by the experience of others, it behooves us to study carefully the conditions of our plant.

"One of the fires, not of a member of our association, was the result of an unusual cause, namely the closing of an ordinary open knife switch. Considerable gasoline fumes had accumulated in the building in which this switch was located and a spark caused by the closing of the switch set off the explosive mixture within the building, which in turn communicated to other parts of the plant.

"In view of the unusual cause of this fire, there may have been some excuse for overlooking the hazard, although it could have been entirely eliminated by using the approved enclosed type of switch. There are many other hazards around the average refinery that could not be excused, such as leaking connections, open top tanks, such as traps, etc., near a railroad where sparks from passing locomotives are likely to fall, poorly constructed and unkempt roofs, etc.

"It is not unusual to find a refinery that has not only been careless in eliminating fire hazards, but has not taken the proper precautions to combat a fire in case one occurred, such as having tanks and buildings properly equipped with open-flow steam lines, the valves so located as to be readily accessible in case of fire, also an ample supply of fire hose that is known to be in good condition, with hose and fire equipment house in a remote location so as to be accessible regardless of where the fire might originate."

To make certain that steam will get to the right tank in case of fire, Harry H. Willock, Waverly Oil Works, Pittsburgh, says they keep all their lines from boiler to tanks wide open all the time and then in case of fire hurry around and turn off the valves to the tanks not on fire.

In this way he protects himself against the excitement of the moment causing the men to turn on the wrong valve. The steam line valves are handy enough so that no steam is lost before the valves do get turned off.

Refiners To Meet

TULSA, Sept. 22—General meetings of the Western Petroleum Refiners Association will be held here on the afternoons of Oct. 9 and 10, in conjunction with the International Petroleum Congress and Exposition. Meetings will convene at 1 o'clock each day in the assembly room of the Mid-Continent Oil & Gas Association.

Refiners Urged To Watch Railroad Plan

Staff Special

ATLANTIC CITY, Sept. 27.—The impracticability of working out a uniform system of cost accounting for the refining industry was reported to the National Petroleum Association at its annual meeting by the deportment of economics, accounting and statistics, of which Fred G. Clark president of Fred G. Clark Co., Cleveland, is chairman. The various causes leading to this conclusion were set forth in the report which is herewith given in full, as it was brief.

"The chairman of the committee of economics, accounting and statistics for the present year herewith reports that the committee has endeavored to find a basis for uniform cost accounting in the oil industry, without any satisfactory results. In fact, the committee is of the opinion that it is impossible to find a practical basis for uniform cost accounting in a business such as the oil industry.

"In the first place, the cost of crude, of manufacturing and overhead would have to be allocated so that the primary product would bear the major portion of the cost, the by-products in most cases bearing only the crude cost. For instance, in Pennsylvania today filtered neutral oils are very much in demand, while the market for other products is very sluggish. If a refiner is making money at all he is making it on his neutral oils. It is necessary therefore, that these oils carry the burden of the manufacturing and overhead expense, for he is losing money on his other products.

"Second. The ratio of realization from the different kinds of crude run through the refinery would have a very important bearing on the cost of the refined products.

"Third. The question of evaporation makes it difficult to establish any figure for this natural loss, which is governed by a refining condition and methods used.

"Fourth. The size and completeness of the plant also have an important bearing on the cost of the principal prod-

Skimming would be almost as profitable as cracking now is by the Dubbs Process, if you could buy 35/40 gravity crude delivered to your refinery at the same price as the cost of your fuel oil already there

Providing a 35/40 gravity crude will yield as much gasoline by skimming, as fuel oil now does by cracking with the Dubbs Process

Universal Oil Products Company
Owners of the Dubbs Process
208 South La Salle Street Chicago

ucts, inasmuch as it is quite obvious that a refinery making all of the by-products has a better opportunity to allocate the manufacturing and overhead expense over a larger number of products than the small refinery, which makes but a few by-products.

"Fifth. Climatic conditions have more bearing on the cost than most people realize. There are days at some refineries when it is absolutely impossible to get the oils to settle. In fact, sometimes two or three days at a time. This naturally holds up production of finished products.

"Sixth. Seasonal demand and market prices of the finished product also must be considered, for a refinery must run those products which are most in demand, and consequently bring the best price during the season of the year when that particular product is most in demand. Motor oils are in demand over the summer season while fuel oil is in demand through the winter season. A wise refiner who has plenty of capital and storage facilities will store products through the dull months in order to get the top price through the months in which those products are in demand. However, many refiners are not financially able to tie up their capital over such a period.

"There are many other features which have a bearing on the cost of products, but the above will give some idea as to the impossibility, or better, the impracticability of working out a uniform cost system of the oil industry."

Would Empower Detroit To Sell Gasoline

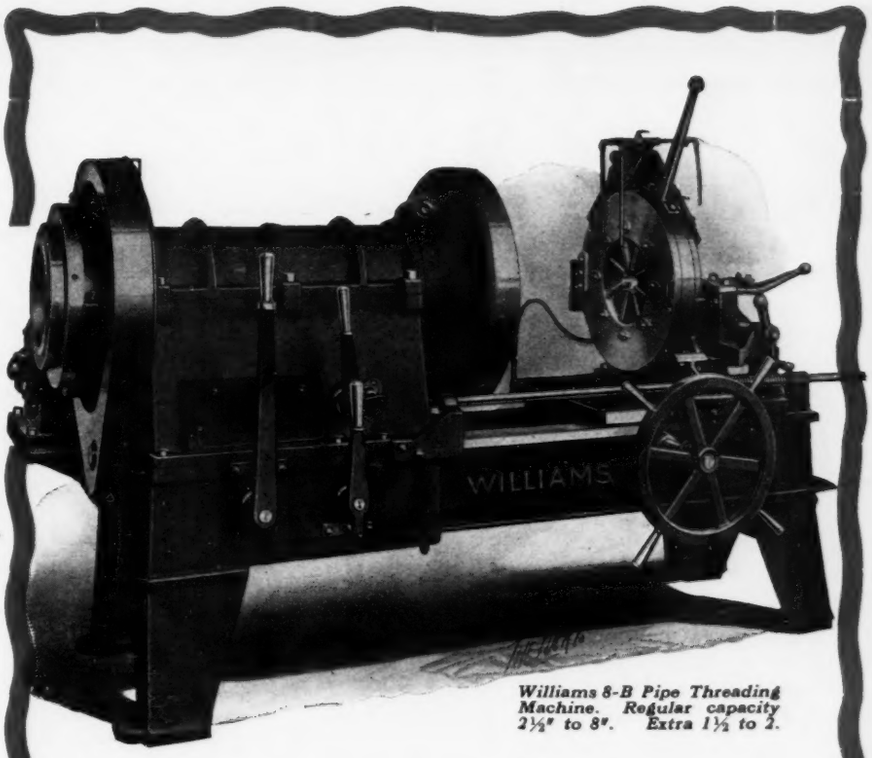
DETROIT, Sept. 27.—An amendment to the home rule act for Michigan cities under which a municipality may engage in the sale of gasoline, motor oils, greases and alcohol at wholesale and retail, has been drawn up by the corporation counsel's office at the instance of Fred T. Castator, a member of the Detroit common council, and will be forwarded to Governor Alex. Groesbeck for presentation to the legislature when it meets in special session in November.

The proposed amendment follows: "Each city may in its charter provide the power to purchase and sell at wholesale or retail, or either, within its limits, gasoline, transmission oil, lubricating oil, cup grease and alcohol and for the ownership, construction, maintenance and operation of filling stations and storage plants."

It is also planned to include other commodities in this act. Already adverse criticism has been directed against the feasibility of selling plans of this kind because it is pointed out that the proper sources of supply and buying connections will not be available although there is every likelihood that the bill will be submitted to the legislature in special session.

Page Takes Over Test

CASPER, Sept. 27.—Charles Page, of Sand Springs, Okla., has taken over the test of the Connelly Oil & Land Co. in 27-2N-5E, which is nine miles north of Riverton, Fremont county, Wyo., and has resumed drilling. The test has been standing for some time at 1550 feet.



Williams 8-B Pipe Threading Machine. Regular capacity 2½" to 8". Extra 1½ to 2.

WILLIAMS PIPE THREADING MACHINE

In Operation at the Exposition and Ready to Prove All Our Claims

Williams Pipe Threaders cut full tapers from end to end. Ordinary threads cut parallel before tapering, which results in the shallow spot and weakness illustrated below.

NO other Pipe Threading Machine of any type can meet all the requirements of the Producer or Refiner as the WILLIAMS can.

There is no limit to the ability of a Williams Machine to cut any kind of pipe or casing thread regardless of form, length of thread, degree and length of taper or straight running threads.

All Williams-cut threads are produced on a *production* basis and within close *working tolerances* giving *100% STRENGTH.*

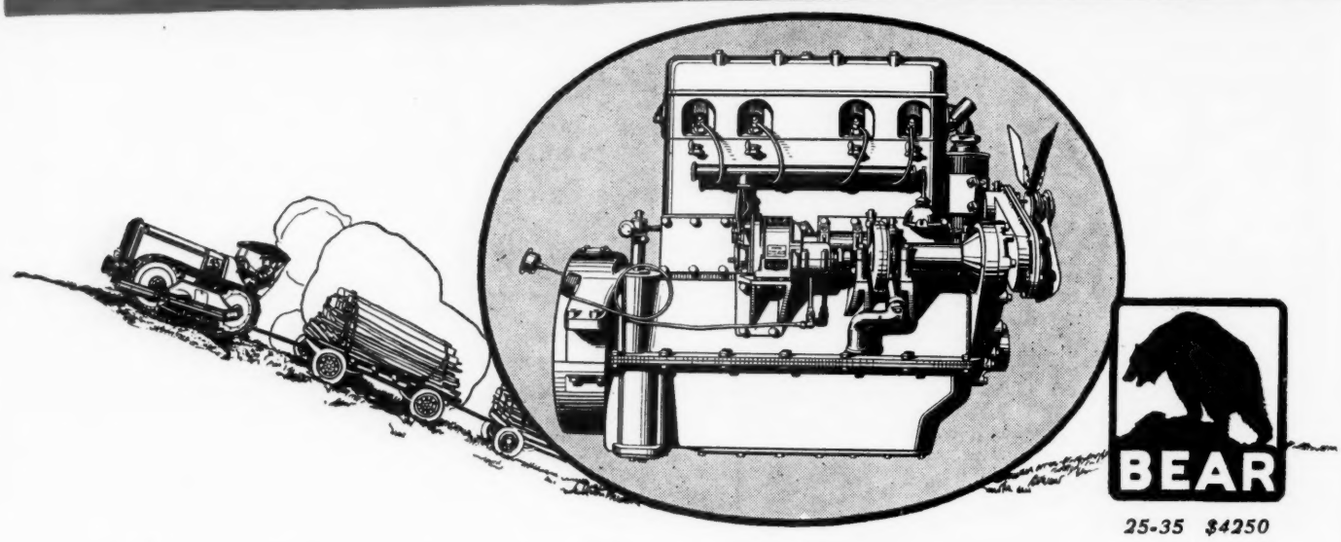
These features are responsible for Williams installations under the most exacting requirements. What they will do for others they will do for you.

Full specifications, cuts and description sent upon request.

Williams Tool Corporation

Erie, Pa.

The Bear Tractor



25-35 $4250

This Engine's Performance Has Never Been Attained by Any Other Engine of Its Class

HERETOFORE, it has been customary to measure the obtainable power in tractor engines almost exclusively by the bore and stroke. To obtain more power the general practice has been to increase the size rather than to secure *more* power from the *same* size engine.

But in the case of the Bear Engine, as with airplane engines, greater power has been obtained through higher volumetric efficiency. After years of careful work we have developed a four cylinder heavy duty engine of 462 cubic inches displacement which develops from 60 to 70 horsepower over long, continuous runs, with a maximum of 81 h. p.

On block tests, Bear Engines developing 69 horsepower at the start were developing 71 horsepower after running continuously for 12 hours without a change in adjustment. And after long, hard service in actual operation these engines continue to develop practically 100% of their original horsepower.

The extremely high thermal efficiency of the Bear Engine is shown by the fact that only .5 of a pound of fuel per horsepower hour is required at full load and a trifle less than .6 of a pound at half load. Bear Tractors are operating 10 hours per day over long periods under full load (which is greater than the rated load of the tractor) on 2.8 gallons of gasoline per hour.

To the tractor user, this Bear Engine performance means economy—*lower cost* for work done, whether the job be building and maintaining highways, removing snow, hauling logs, freighting in oil fields, pulling farm implements or doing any other tractor work.

Send today for new illustrated catalog

BEAR TRACTORS INC. 5322 PARK PLACE NEW YORK CITY

The Tractor that Delivers its Power to the Drawbar

Oil Industry's Fire Losses Are Increasing; Refiners Lead

ATLANTIC CITY, Sept. 27 THE oil industry's fire losses are increasing, so Fred J. Slack, assistant secretary and treasurer of the National Petroleum Mutual Fire Insurance Co., Philadelphia reported. He spoke in the absence of Houston Dunn, general manager, who returned from a European trip last week.

As the bulk of the company's business is written on refineries, that class of risk continues to show the largest losses in number and in dollars but the jobbers are a close second.

Mr. Slack said in part:

"The first insurance Company in the United States was a mutual and was organized in 1752 by that wise old owl, Benjamin Franklin, and was eminently successful leading to the formation of other mutual companies which are being successfully operated today.

"The Philadelphia Contributionship, as well as the Green Tree in Philadelphia, are the oldest fire insurance companies operating in the country today, and both are mutuals.

"The insurer, in looking over the reports of certain mutual companies, is apt to compare the size of their surplus with the surplus of a stock company, forgetting these comparisons should not be made without taking into consideration the amount at risk. The average high grade mutual has a greater surplus in proportion to the amount of insurance at risk than the average high grade stock company. Three largest stock companies have 3.28 surplus to 1000 at risk, National Petroleum has over 600 surplus to 1000 risk.

Mutual Insurance Growing

"Mutual insurance is attracting men, big men, men of affairs with national reputation and experience. When a man holds mutual insurance, he has greater confidence in, and more respect for the company because he knows the solution of its problems, is determined not on how it will affect the profits of some private stockholder, but on how it will affect the service to him.

"When the public becomes fully aware of the principles, the plan of operation and the methods of mutual insurance, I firmly believe not a dollar's worth of insurance will be written outside of a mutual company.

"The National Petroleum Mutual was formed some 15 years ago in response to a general demand of the whole oil trade for commensurate rates for its fire insurance. Rates were excessively high for not only the refiner but the jobber as well and in quite a number of instances it was difficult to secure a sufficient amount of insurance to cover the values at a plant.

"I recall one refiner paying a rate of $3.75 per $100.00, another $3.50 and several $3.00. These same properties are being written today at less than one-half the rate paid 14 years ago and the owner has no difficulty whatever in placing his insurance. If the National Petroleum Mutual has accomplished nothing else, it has been worth while, for it has educated the stock companies and taught them by years of experience, the oil business can be written at a comparatively low rate and still be profitable, for the National Petroleum Mutual has returned dividends, sometimes large, sometimes small, every year since organization.

"The reduction in rate brought about by our competition and by our inspection service has, without doubt, saved millions of dollars in premiums to the oil trade.

Started With Nothing

"Started with nothing back in 1909 except the determination of the then officers and directors to put it across, your company is now carrying $17,777,-082 insurance and has an annual premium income of $223 670. It has paid to its members $957,927 in losses by reason of 710 fires in which it has been involved.

"Notwithstanding the average rate has decreased steadily each year of our existence from 2.94 in 1910 to 1.25 in 1923, it has paid $79,798 in dividends to its members and had Jan. 1, 1923, legal reserves and surplus of $127,444. These funds have been invested with judgment and care as is evidenced that at no time in the history of the company has its invested assets been valued by the National Convention of Insurance Commissioners at a lower figure than the cost price to the company.

"Since operation we have been involved in 710 fires classified as follows:

Class	Number	Loss
Refiners	251	$295,545.00
Jobbers	237	465,893.00
Tanks	108	142,717.00
Miscellaneous	114	53,772.00

"Notwithstanding all the publicity and efforts expended during the past few years through a nation wide campaign on the part of mutual insurance companies and municipal and state authorities to reduce the number of fires, the national ash heap has steadily increased in size until it reached the tremendous sum of $500,000,000 for the year 1922 and 1923 bids fair to be no better as the loss for the first six months is in the neighborhood of $300,000,000.

"The oil industry has contributed its share of the fire loss, for during the first eight months, the National Petroleum Mutual has been involved in 127 fires and has paid $109,812.00 in losses.

"Summary of fires first eight months of 1923:

Class	Number	Loss
Refiners	25	$44,228.00
Jobbers	29	35,088.00
Tanks	15	15,791.00
Miscellaneous	58	14,705.00

"When the causes of fire are mentioned, in about 85 per cent of the cases, they can be boiled down in plain English to carelessness and lack of proper safeguarding.

"The National Petroleum Mutual is trying to do its part in cutting down the great fire waste in this country at least as far as the oil industry is con-

How Are You Prepared Against Oil Fires

Answer the following questions to yourself and you will find how carefully you are protecting yourself against fires. It's a "self inspection" blank being issued by the oil trade's mutual insurance company.

FIRE INSPECTION REPORT

Have a careful inspection of your property made once a month by a responsible employee, and fill in the following and return it to the office of the National Petroleum Mutual Fire Insurance Co. We are at your service.

CLEANLINESS

1. Is there any accumulation of papers and trash, packing materials, greasy rags, waste or litter of any kind under benches and elevated filling, loading and receiving platforms, or in tank pits, or in closets, corners or other out of the way places, or are there dry grass, high weeds or litter in the yard?
2. Are metal trash cans in their proper places and in good order?..... Are they emptied regularly and contents properly disposed of?.....
3. What places or pieces of equipment are not as clean as they should be?
4. Are there any obstructions in aisles or passageways or in working spaces which should be kept clear, or on stairways?.....

EQUIPMENT

5. Is all plant equipment in good order?..... (Report broken, loose or disarranged equipment, leaks in tanks, pipe lines or outlets, or platforms or steps in poor order, etc.).....
6. Is all electrical equipment in good order?..... (Report broken or loose fixtures or connections, loose or worn wires, missing lamp guards or fuses replaced by wire or otherwise defective.)
7. Is all heating equipment in good order?..... (Report wood-work or other combustible material in contact with or too near smoke-stacks, flues, furnaces, boilers, steam pipes, etc.).....
8. Are all fire doors and other doors in good order?..... (Report whether doors are wedged open or obstructed, whether automatic attachments or fusible links are in good order and whether doors are closed at night and on Sundays and Holidays.)

FIRE APPARATUS

9. Is all fire equipment in good order, ready for immediate use?..... (Report whether extinguishers, sand pails, etc., are filled and in place where they can be readily obtained when required; whether fire hose and hydrants, ladders and chemical engines are in good order and not obstructed by materials, snow, ice or otherwise; and when fire pumps were last tested and their condition.)
10. Are "No Smoking" signs in place, and are the rules regarding smoking and the use of matches, torches and open flames observed? .....

Remarks and Recommendations: (Use this space to report other conditions other than those covered in the printed list, which may be thought dangerous or which should have attention; also for details.).....

I have made a careful inspection this..... day of 192..... and report as above.

.....
(Sign here)

For Seventeen Years Builders of Super Tanks

Superior workmanship, sturdier construction and 'square dealing' account for our rapid growth and the continued year after year patronage of our many clients.

Prominent oil men all over the country have benefited by the prompt deliveries, quick set-ups and long service of Standard Super Tanks and are telling their friends about it.

You too can save time and money with these double-braced, bottle-tight tanks. Steel Super-Supports that eliminate slow setting concrete foundations and speed up erection shipped with each tank when desired. Standard Tanks are available in single, double or triple compartments, any size for any purpose. *Write us your requirements and we will quote prices and delivery dates by return mail.*

The Standard Boiler & Plate Iron Co.

STANDARD TANKS

Niles, Ohio

STANDARD TANKS

CADDO CENTRAL
Oil & Refining Corporation

Refiners of

New Navy Gasoline
56-58 450 End Point Gasoline
64-66 400 Export Gasoline
Water White Kerosenes
Gas Oils
Fuel Oils

We own (not lease) 800 Tank Cars

—operating two separate refineries, Both at

SHREVEPORT, LOUISIANA

cerned. Last year we got out and sent 3500 self inspection blanks to various refiners, jobbers and others in the trade, whether members of the company or not, and were gratified to have quite a goodly percentage returned properly filled out and we know certain risks which were not in the 'A' class were made so under the advice and instructions of the engineers of the company. In the interest of the industry we are about to send out another inspection blank."

Dealer Nails Paper's Unfair Comparison

CLEVELAND, Sept. 26.—The New Castle, Pa., News a few days ago carried an article condemning oil companies in that city for what was described as excessively high prices for gasoline. Tank wagon prices in 30 cities were published and these were compared to the retail price including the 2-cent Pennsylvania state tax in New Castle. The News, however, was fair enough to print the following letter from O. D. Williams of Dean's Auto Service, that city:

"In some districts, mostly western states, the tank wagon price of gasoline is a few cents per gallon lower than Western Pennsylvania district tank wagon. But we must consider of what quality this is.

"The bulk of gasoline moving at the lower price is termed in the oil industry as 'New Navy specifications' of which the gravity is 58-60 and the end point 437. This is marketed as motor gasoline.

"Our present tank wagon price on what is termed motor gasoline in this city is 18 cents per gallon, not 22 cents as stated in your paper), and is a 62-64 gravity, Pennsylvania straight run, with an end point of 375 to 385 which as can be seen, is a much better quality than 'New Navy.'

"According to all laboratory and physical tests it is shown that the gasoline in the New Navy class costs the consumer more per mile compared to the better grade as marketed in this territory even at a few cents per gallon higher.

"It is possible to buy gasoline from the Mid-Continent or Texas fields to sell at 14 to 15 cents per gallon tank-wagon in New Castle but the consumers in this territory have been educated to a better quality of gasoline and from our experience that grade of gasoline would not sell here, even though it would only lower the price 3 or 4 cents per gallon.

"In regards to the comparison between New Castle and Youngstown, O., as to prices as mentioned in your article, you state that the tank wagon in Youngstown is 18.5 while New Castle is 22 cents. This is in error as our tank wagon is 18 cents plus 3 cents for service station profit (which is low enough) making a retail price of 21 cents. Of course there is a state tax of 2 cents per gallon which the consumer is compelled to pay but this cannot be figured in the price of gasoline.

"True, we have a tank wagon price of 22 cents for a 68-70 gravity Pennsylvania straight run gasoline but this cannot be compared with your average in 30 cities in different parts of the country of 15.81, for as we have stated before this average covers gasoline such as New Navy specifications."

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THAT'S what one reader has to say for himself and for us.

What NATIONAL PETROLEUM NEWS has accomplished for this man it can do for you, no matter what branch of the oil industry you are engaged in.

If you're anxious to grow with the big growth of the oil industry—if you want to belong among the men from whom your company will pick its department heads and executives—

Send your order for the coming 52 issues of NATIONAL PETROLEUM NEWS today. The blank below will turn the trick.

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Cleveland, Ohio

Enroll me for the next 52 issues of your "national newspaper of the oil industry" at once. Enclosed is check, (draft or money order) for $2.50. (Mexico $2.50 in U. S. Money, $3.50 in Canada and $5.00 in other foreign countries.)

Name .....

St. or Box .....

City .....

Company .....

Branch of industry engaged in .....

Here And There

DIRECTORS of the Great Southern Refining Co., Lexington, were re-elected at the annual meeting, Sept. 15. They are: W. B. Hassett, Lexington; G. A. Foreman, Ralph Hockstetter, and P. G. Bixby of Buffalo, N. Y.; Paul G. Blazer, R. A. Cooley and Frank T. Justice, of Lexington. O. C. Flynn was elected treasurer to succeed H. C. Lux. Other officers who were re-elected, are: Mr. Hassett, president and general manager; Mr. Blazer, vice-president, and R. L. Northcutt, secretary.

* * *

NEW YORK, Sept. 26.—J. J. Harvey, formerly of the Pennsylvania & Delaware Oil Co., and Henry L. Sloan of Sloan & Russell, Inc., have formed the Invincible Petroleum Corp. for the purpose of marketing lubricating oils. Headquarters are at 198 Broadway. Mr. Harvey soon will make a trip through the oil fields of Pennsylvania and the southwest after which he will tour Europe and South America.

* * *

SHEBOYGAN, WIS., Sept. 27.—Trilling Bros. Oil Co. have in operation a service station at 8th street and Michigan avenue, one of the finest in this part of Wisconsin. It is built of brick and has a canopy over the two drives. The grounds about the station are parked and well lighted. Free draining service and other conveniences have been installed. Hyvis Motor oils are handled.

* * *

FRONT ROYAL, VA., Sept. 27.—Western Maryland Oil Co., Inc., expects to have in operation Oct. 1 its new main bulk station at Cumberland, Md. The company is distributor of The Texas Co. products in Cumberland and surrounding territory in Maryland and West Virginia. Frank Forsyth, Jr., is president.

* * *

TULSA, Sept. 22.—E. J. Freeman, Mid-Continent representative of C. A. Gustafson Co., has perfected an arrangement with that company by means of which he will represent a number of other companies in the field. His offices are on the 12th floor of the Atlas Life building.

* * *

HILLSBORO, KAN., Sept. 27.—The Kornelsen Oil Co., owned by J. G. Kornelsen, this week opened a filling station here. The company has a bulk station at Canada, five miles east of Hillsboro from which it operates two trucks.

* * *

TULSA, Sept. 26.—J. S. Cordell, sales manager of the Empire Refineries, Inc., is visiting eastern and northern branches of the Empire and allied companies and calling on the trade. He will return to Tulsa about Oct. 1.

* * *

BUFFALO, Sept. 27.—R. L. Cary, formerly with the Remington Advertising Agency, has been appointed advertising manager of the Pennzoil Co. of New York with headquarters at 158 Pearl street, Buffalo.

W. L. Morrison, formerly with McColl Bros., of Toronto and Hamilton, Ont., has been appointed manager of the western division of the Pennzoil Co. with headquarters here. He succeeds R. R. Beardsley who has resigned to distribute Pennzoil products with H. S. Murphy of Attica, N. Y., in parts of central and western New York.

E. C. Freiling, Rochester, has been appointed Pennzoil manager in the district around Rochester and the counties south toward the Pennsylvania state line.

* * *

LEWISTON, ME., Sept. 27.—A flurry that threatened for a day or so to become a price war, developed here last week but before any blood was spilled the price of gasoline at the service stations settled down to 21 cents.

* * *

YORK, NEB., Sept. 26.—Swartz Bros. have opened a service station here with rest room for women, and plenty of parking space for automobiles about it.

* * *

PORTLAND, ME., Sept. 27.—Ralph Kenney who represents the Tide Water Oil Sales Corp. with headquarters at Lewiston, was here a few days ago and said that he was finding business good.

* * *

FRANKFORT, KY., Sept. 27.—Louisville Filling Stations Co. of Louisville has been incorporated by R. A. Reynolds and Rex E. Enox with $10,000 authorized capital.

* * *

TULSA, Sept. 26.—Joseph L. Costner, of the Joseph L. Costner Co. of Los Angeles, visited in Tulsa and vicinity last week.

* * *

DUBUQUE, IA., Sept. 29.—Oil dealers of Dyersville, Iowa, and vicinity have organized a jobbing company to be called the Dyersville Oil Co. They will have two trucks and distribute gasoline and oils to surrounding towns. Their gasoline will be called "Rainbow Gas." Directors of the company are: J. B. Gebhard, Floyd J. Henkels, Peter J. Henkels, A. E. Schuster, Ed F. Link, Clyde Bolsinger and William A. Rohenkohl.

* * *

DECORAH, IA., Sept. 28.—John O'Neil and L. R. Schrimpf who have been doing an oil jobbing business as the O'Neil Oil Co. have sold out to the Sinclair Refining Co.

* * *

NEWARK, O., Sept. 27.—Leslie Grove has bought all outstanding stock in the Leslie Grove Oil Co., Inc., here. The company has one of the finest service stations in this part of Ohio.

* * *

MARION, VA., Sept. 26.—Frank T. Lemmon, president Virginia Oil Co. of Marion, recently married Miss Alexina Lincoln, also of Marion.

* * *

GREENSBURG, KAN., Sept. 27.—Winters Oil Co. of Greensburg, managed by F. H. Winters, recently installed bulk and service stations at Haviland and Mullinville, Kan.

* * *

GLENROCK, WYO., Sept. 26.—L. E. Chamberlain, superintendent of the Standard Oil Co. plant at Glenrock, is celebrating the arrival of twin sons.

* * *

SOUTH BEND, IND., Sept. 26.—Western Oil & Refining Co. of Indianapolis has opened a service station here in charge of I. F. Richardson.

* * *

DENTON, TEX., Sept. 27—Magnolia Petroleum Co. has started construction here of a 24 by 28-foot buff brick service station.

* * *

SOMERSET, KY., Sept. 27.—Great Southern Refining Co. of Lexington is to build a bulk station here. S. H. Gooch will be agent.

* * *

BOSTON, Sept. 26.—H. T. West of the H. T. West Co., Boston, is spending a few days at White Sulphur Springs, W. Va.

* * *

BEATRICE, NEB., Sept. 27.—The Coryell Oil Co. of Lincoln, Neb., has leased two lots here on which it plans to build a service station.

* * *

DADE CITY, FLA., Sept. 26.—J. H. Lambing is building a service station and accessory store here.

* * *

SPENCER, IA., Sept. 29.—Mason City Oil Co. has bought a site for a service station at Milford.

* * *

ORD, NEB., Sept. 29.—The Texas Co. has completed a bulk station here. O. G. Petty is agent.

* * *

NORTON, KAN., Sept. 27.—Kent Oil Co., owned by R. L. Kent, is building a service station here.

* * *

CHANUTE, KAN., Sept. 26.—Brickler Oil Co. has opened its second service station in Chanute.

One of the most surprised men in the oil industry last week was Frank B. Fretter, president of the National Refining Co., of Cleveland.

His surprise arose from his reading of the reproduction on page 41 of **National Petroleum News,** Sept. 19 issue of a poster placed on a billboard in Oklahoma by a retailer of gasoline, and published as an example of the ignorance concerning gasoline even on the part of dealers.

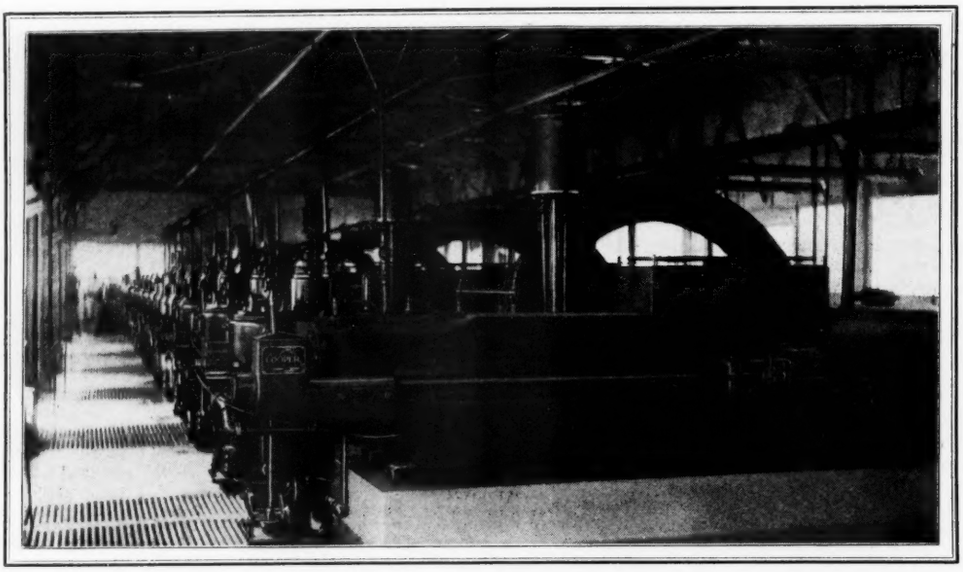
Among other statements, the poster informed the world that White Rose Gasoline was the "purest gas" tested by the government which was nice—but went on to say that White Rose was made by the Standard Oil Co.

This is what surprised Mr. Fretter.

White Rose is made by the National Refining Co. and nobody else, Mr. Fretter emphatically says, and the Standard Oil Co. has nothing whatever to do with it.—Editor

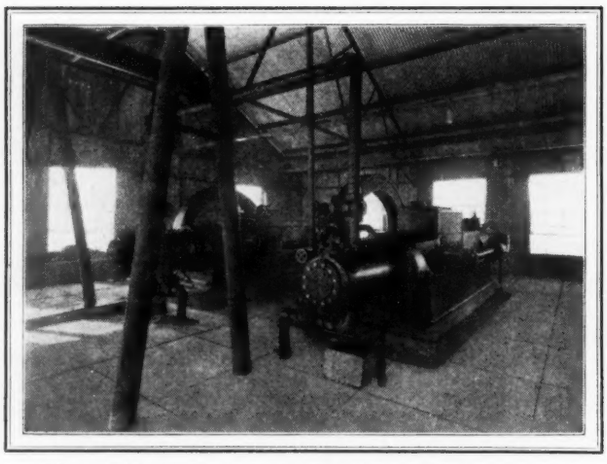
---

Jobbers: Would you like to pick up some particular piece of second hand equipment at a bargain? Perhaps you will find just what you want offered for sale on the classified page of this issue.



Lone Star Gas Company's Pernell Station near Wynnewood, Oklahoma, contains six Cooper 160 H. P. Gas Engines. This company was one of the first large users of gas engines to standardize on the more economical four-cycle direct connected type of engine. Their last order for eleven engines, to be delivered yet this fall, will make them a total of eighty-nine Cooper units.

A Big Year For Cooper Gas Engines



Two 80 H. P. Cooper Four-Cycle Gas Engines in the Barnsdall Oil Company's station near Bartlesville, Oklahoma. (Showing compressor end.)

It is true that Cooper Gas Engines have been selected for practically all the large compressor installations during the past year—not in one district alone, but in every state where oil and gas are produced. This has not been due to any temporary wave of popularity or to any high pressure selling plan. In every case the operators have investigated, compared and then bought Cooper equipment.

Naturally, when widely separated purchasers show such a preference, it indicates a product of exceptionally high comparative value. In this case there are a number of very easily understood reasons why Cooper Gas Engines are considered to represent a bigger value, and sometime it will mean a saving in both time and money for you to know them.

THE C. & G. COOPER CO. MT. VERNON, OHIO.

Present Flush Fields And Not Those In Making The Real Factors

By Paul Wagner

STAFF REPRESENTATIVE

LOS ANGELES, Sept. 27 THAT new fields which will reach their more active periods of development in 1924 will not affect the present peak of production in California has been previously pointed out by the writer. This is based upon the hypothesis that at least six to eight months are required for a new field in the Los Angeles basin to be felt in a major sense.

This was also referrred to by Joseph Jensen, chief geologist of the Amalgamated Oil Co., in a paper presented at the mid-year meeting of the American Association of Petroleum Geologists here. Mr. Jensen extended the period when new fields will become effective to as much as 10 months or a year.

A point made by a number of petroleum engineers in private conversations and who because of their company connections obviously cannot be quoted, was to the effect that as old production becomes more and more a factor in the major fields of the Los Angeles basin, as distinguished from newer flush completions, the rate of decline of wells and well groups will be relatively slower when treated in terms of percentages than it has been in the past. This fact was recognized by Mr. Jensen, who pointed out this condition in his paper before the association.

R. E. Collom, state oil and gas supervisor, before the same meeting declared that "in the petroleum world California has passed, during the last two years, from a position of isolation within the economic province on the shores of the Pacific to one of extremely active, if not menacing, competition with the principal petroleum producing regions of America. It is probable that those who have not been intimately associated with the progress of the petroleum industry in California will be inclined to appraise California oil production by the results of the flood of high grade petroleum only recently developed in the town lot fields of the Los Angeles basin. It should be borne in mind, however, that petroleum is California's principal source of fuel and power. Whenever oil production declines, as it naturally will to a point equal to the long established and growing demands of the Pacific coast, the flood through the Panama Canal will be less prominent in the picture and California's most valuable resource will continue to be used as it was destined to be primarily for California.

"Viewed solely from our own provincialism, the great production of the Los Angeles basin has been revolutionary in character; has placed the California petroleum industry closely upon the borders of disaster; and the method of development, mainly the uncontrollable, in fact enforced drilling of small property holdings, has shown the futility of attempting conservation where each man is set against his neighbor in a greedy contest to get the lion's share of this mobile resource."

Los Angeles Basin Increase

Mr. Collom referred to a table, which is reproduced herewith, showing that the proportion of Los Angeles basin production to the state's production had increased from 28 per cent in 1920 to almost 80 per cent in June, 1923.

"The oil fields of California," he said, "have produced 1,720,838,000 barrels of oil to July 1, 1923; an average production of 29,250 barrels per developed acre. As of July 1, 1923, there are 113,449 acres of proven oil land in the state of California, a little over half of which has been developed by some 14,242 wells drilled to an average spacing of 4.1 acres per well.

"As of July 1, 1923, the three gusher fields of the Los Angeles basin covering 5471 proved acres, or five per cent of the state's total, were producing 72 per cent of the total oil output with six per cent of the total number of producing wells. The average daily production per well for these three fields was 1057 barrels in July, 1923. The average daily production per well for all other fields of the state, excluding Huntington Beach, Long Beach and Santa Fe Springs, was 25 barrels for 8,345 porducing wells. In December, 1920, the average daily production per well for the 9,600 producing wells of the state was 33 barrels. In the spring of 1922, it became necessary to shut in some of the producing wells in the older fields of the state to make way for the flush production of the Los Angeles basin. It is estimated that on July 1, 1923, a total of 2000 producers in older fields had been shut in, representing a total average daily production at the time of shutdown of 100,000 barrels. This does not include production held back in the three big fields as a result of pinching in."

Later Production Statistics

Production figures down to September 13, 1923 on the Huntington Becah, Long Beach and Santa Fe Springs fields show the following records, which may be used as supplementary to Mr. Collom's statistics:

Week	Daily Average Field Prod.	New Wells	Total Wells
Long Beach			
9-13-23	245,528	7	237
9- 6-23	253,779	13	239
8-30-23	241,686	9	223
8-23-23	237,690	10	221
Huntington Beach			
9-12-23	95,397	1	202
9- 5-23	98,986	3	204
8-29-23	100,615	2	200
8-22-23	106,608	2	205
Santa Fe Springs			
9-13-23	327,304	10	210
9- 6-23	338,587	—	199

In connection with the foregoing figures, a survey made by the writer establishes that Long Beach (Signal Hill) is the currently unknown quantity in the southern California situation as measured in terms of the future influence of the three major fields. The limits of production to come from deeper drilling are not as yet determined in this field. If another and deeper zone of production is struck and found to be economically

Oil Recovered per Developed Acre in California Fields

Field	Production to July 1, 192	Developed Acreage within proved area July 1, 1923	Production per developed acre	Average daily prod. per well June, 1923 (bbl.)	Year of first Prod
Coalinga	268,949,000	10,589	25,400	19	1896
Elk Hills	41,606,000	1,832	22,700	234	1919
Kern River	239,317,000	6,139	39,000	9	1900
Lost Hills-Belridge	49,786,000	3,078	16,200	14	1910
McKittrick	66,144,000	852	77,700	24	1898
Midway	365,779,000	17,831	20,500	35	1901
Sunset	95,077,000	2,811	33,900		1900
Wheeler Ridge	39,000	9	4,340	208	1923
Beverly Hills Los Angeles		Los Angeles omitted	No data on Los Angeles		
Salt Lake	58,043,000	915		5	1894
Long Beach	45,544,000	444	102,500	987	1921
Montebello	48,749,000	885	57,000	89	1917
Santa Fe Springs	42,394,000	575	73,700	1815	1921
Torrance	796,000	165	4,830	189	1922
Whittier	9,673,000	568	17,000	11	1912
Brea-Olinda	98,513,000	991	99,400	31	1897
Coyote Hills	86,829,000	1534	56,550	25	1912
Huntington Beach	32,012,000	914	35,000	547	1920
Richfield	23,299,000	1069	21,800	95	1919
Summerland	2,466,000	120	20,550	1	1894
Casmalia Cat Canyon Lompoc Santa Maria	110,926,000	4828	22,950	26	1902
*Ventura—Newhall	26,146,000	2115	12,500		1876
South Mountain	5,459,000	200	27,300	20	1916
Ventura—(Ave)	1,888,000	214	8,820		1917
Miscellaneous	1,134,000	160†	7,000	9	1894
Entire State	1,720,838,000	58,808	29,250	85	1876

*Include Bardsdale, Conejo, Ojai, Piru, Simi, Santa Paula, Sespe, Newhall.

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profitable to exploit below the 5500-foot level, from which a number of wells are now producing, then this field can stage a comeback that probably could not be realized in similar manner in either Huntington Beach or Santa Fe Springs.

Definite shale bodies exist below the deepest currently producing horizons in the Huntington Beach and Santa Fe Springs fields in which the sandy lenses apparent at producing levels seem to be absent. So far, these shale bodies have been non-productive and it is believed they represent the economic limits at which commercial production can be obtained in these fields.

Conditions of Water Intrusion

It is not known whether a water horizon exists below the present deep producing zones in these fields. There are intermediate water horizons between the zones of production higher in the geologic column and the effect of these upon producing conditions is now being felt, particularly through migration from one affected well to another. This condition obtains more notably in closely drilled parts of the fields.

The encroachment of waters at the present stages of development in these two fields, as well as Long Beach, probably reflects an effect of decreased production rather than a cause of decreasing production. This statement is based upon the fact that water in quantity has appeared for the most part only in closely drilled areas and in a few instances on the extreme edges of structure. An explanation of the cause of decreasing production is the reduction of presssure by intensive drilling in local areas.

Presence of water in the Bell (upper) sand zone at Santa Fe Springs can be attributed to the following causes:

(1) Natural encroachment of edge-water.

(2) The non-effectiveness of water shut-offs due to improper cementing.

(3) The movement of water from foreign sources, such as the migration of brine from one well to another; the migration of water from a lower horizon; the migration of water carried by drilling wells at greater depths, etc.

A consideration of Bell sand water conditions, therefore, contributes mainly criteria for estimating water action on producing zones at Santa Fe Springs.

About the middle of August 41 Bell sand wells showed increasing percentages of water and 26 were producing practically clean oil. A month later 27 were producing clean oil and 12 were showing increasing quantities of emulsion. Since then, six more wells have been deepened to the Meyer sand, leaving 33 now producing from the Bell horizon; the latterly mentioned number averaging 463 barrels, daily, each.

Previously, 28 wells had shown water before being deepened to the Meyer sand. It is the practice at Santa Fe Springs to deepen wells to the Meyer when water appears in the Bell sand where it is mechanically possible to do so. The average daily production currently of the 178 wells producing from the Meyer sand is 1760 barrels each.

Meyer sand encroachment so far has not been as rapid as intrusion upon the Bell horizon, principally for the reason that the wells are not as old;

Cut down the coke deposit and increase the length of the run. Increase the length of the run and you get greater gasoline production, less time wasted heating up and cooling down, and greater still efficiency. "All very good" you say "if it's true." Well, ask us how much longer runs are being made where Calorized Tubes are installed. Calorizing is not a theory—it's a money saving fact.

Calorized Tubes are steel or iron tubes that have been subjected to the Calorizing process. In this process, patented by the General Electric Company, aluminum is driven into the metal so as to form aluminum alloy surfaces. These surfaces have the combined qualities of withstanding high heat, reducing the effects of carbon, and resisting corrosive action of sulphur, salt, etc.

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~SAMPLES AND QUOTATIONS ON REQUEST~

Used Oil Equipment

If you want to buy it—turn to the classified advertising page at the back of this issue. If what you want is not listed there, why not insert an advertisement of your own next week?

If you want to sell it—follow the same course.

There is a constant market in used oil equipment. Take advantage of the great savings possible, either by selling what you no longer need or buying what you do need.

National Petroleum News

892 Caxton Building **Cleveland, Ohio**

however, there appear to be varying rates of encroachment in the different members of the Meyer horizon. Some wells that have only penetrated the top of the Meyer are reported to be making small amounts of water, while others at different locations have gone several hundred feet into the sand and are producing practically clean oil; then, there are still others that have penetrated the Meyer zone as far as 450 feet that have shown small amounts of water.

About 175 acres, running northwest-southeast, in an oblong shape on top of the structure, constitutes that part of the Santa Fe Springs pool where less than a 5 per cent encroachment exists in the upper or Bell sand. The main encroachment on the Bell sand is described as coming up the dip from the southwest toward the northeast and perpendicular to the strike of the structure.

Water Analyses Used

It has been discovered through water analyses that edge waters in the Bell and Meyer zones have entirely differing chemical characteristics. The percentages of reaction values of Bell sand edge waters indicate a greater amount of carbonates and lesser quantities of chlorides than do the reaction values of the Meyer sand edge waters. Sodium contents of the waters are described as practically constant as between the two levels.

Due to the extreme thickness of the oil sands at Long Beach, it has been very difficult to locate any particular water horizon in the oil zone by means of water analyses. The waters, generally speaking, have very high concentration, a statement that in contrast cannot be said of the Santa Fe Springs field as the latter is a valley structure; the reaction values of waters at Long Beach show practically all sodium and chloride, under analysis, indicating of course, edge water.

The producing zones in the Long Beach field are most simply classed as the upper and lower Alamitos. Encroachment of edge water is in evidence in practically all measures of the upper Alamitos and also in the upper measures of the lower Alamitos. That condition has necessitated shut-offs at levels that are lacking in uniformity in cases where wells are located down the dip; and in some cases operators have been compelled to put in blank pipe to take care of the situation.

The advantage of having such enormous thicknesses of sand as exist at Long Beach may be offset by more rapid water infiltration soon after the peak of production has been reached. Such a condition could be attributed in a great measure to the unconformity of shut-offs and the differing rates of encroachment of edgewater in the various members of the two more generally differentiated oil zones. In the face of these conditions longevity of production that otherwise could be counted upon would not obtain. Were the condition one where the wells had been spaced according to the depth of the pay, the gravity of the oil and the texture of the sand, a different face would be presented from the viewpoint of future production. The upper Alamitos sand is approximately 1700 feet thick

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and the lower Alamitos, so far as known, about 1900 feet.

Some of the wells in the upper Alamitos, producing from around the 3900-foot level, are making as high as 50 per cent water and as low as 60 barrels daily of oil; others are not showing so much brine. In the lower Alamitos, the situation is less serious.

The 237 wells producing in the Long Beach field as of Sept. 20 show a per well average daily of 1036 barrels in comparison with 1075 barrels, four weeks earlier. A net gain of 16 new wells had been completed in the meantime as compared with 39 completions which had to be balanced against abandonments and holes being deepened from the upper to the lower measures.

Basin Fields Well Defined

The Long Beach field, which now consists of about 1200 acres proven ground, is well defined with the exception of possibly the northwest end of the structure. The average depth on the top of the fold to the upper Alamitos is 2300 feet and to the top of the lower Alamitos 4000 feet. The approximate gas pressure of wells is 550 pounds in comparison with approximately 750 to 800 pounds last spring.

On the basis of 1200 acres proven ground, which includes the less prolific edges of the structure, the Long Beach field as a whole had produced approximately 46,000 barrels per acre up to Aug. 15, and the estimated ultimate yield was then placed at 90,000 barrels an acre.

Santa Fe Springs is considered to be fully defined and its gas pressure because of the intensive drilling practiced, has dropped to roundly 300 pounds. Its estimated per acre production has been approximately 30,000 barrels to Aug. 15 and its ultimate yield is hypothetically placed at 75,000 barrels.

The roundly 2000 acres of productive ground at Huntington Beach had given up an average per acre of 19,300 barrels and are now figured to have ultimate possibilities of about 30,000 barrels. Maximum pressure of flowing wells in this field is given as 1200 pounds, minimum pressure as 50 pounds and the field average as 500 pounds.

California Oil Reserves

It is interesting at this point to revert to the paper of Mr. Collom, before the American Association of Petroleum Geologists, with regard to petroleum reserves in California. Mr. Collom pointed out "that the estimates of ultimate recoverable oil in the various fields of California made by a committee from the Pacific coast membership of the association as of July 1, 1921, in co-operation with and for the United States Geological Survey, were based on recovery per acre of proved oil land. The estimated future recovery from 101,935 acres of proved oil land as of July 1, 1921 was set at 1,680,000,000 barrels with an ultimate recovery of 3,095,000,000, or 30,400 barrels per acre.

Mr. Collom, and R. M. Barnes, who collaborated with him in his paper, endeavored to bring these statements down to July 1, 1923, making such modifications and revisions as the results of recent development seemed to them to require.

"The results of development within the two-year period following July 1, 1921," showed to them "of how little value the estimates of possible oil land

would be when compared with actual results. There is little in California experience prior to July, 1921, upon which, for example, estimates of possible acreage or recovery for the three big fields of the Los Angeles basin could be predicated.

"Petroleum geologists and engineers of California seem to be unanimous in the opinion that possible oil lands, that is geologically favorable but as yet undeveloped areas, should not be included in an estimate of reserves. However, there seems to remain an unsatisfied desire to know what would be the total quantity of recoverable oil if the location and capacity of every field within the state, both developed and undeveloped, were known and could be accurately computed. The writer suggests that if the total possible acreage, as geologically determined, were multiplied by the average estimated ultimate recovery per acre for all proved areas, that this barrelage for possible oil land added to the barrelage of recovery for proved oil lands could be advanced as the maximum estimate of ultimate recoverable oil and the minimum estimate may safely be taken as that of the estimated total ultimate for present proved acreages."

Mr. Collom presented a table of past, future and ultimate production figures made by the association committee in 1921, and then said:

"Revisions in proved acreages are necessary for Huntington Beach, Long Beach, Santa Fe Springs, Torrance and Wheeler Ridge. The three latter fields were not included in the original estimate. The first two fields were included, although in the initial stages of development and underestimated. The status of other areas has not changed greatly since July 1, 1921. The estimates of ultimate production for Huntington Beach and Long Beach were revised upward as follows: Long Beach from 5,000,000 to 130,000,000 barrels and Huntington Beach from 38,425,000 to 143,508,000 barrels. The estimates for the three latter fields have been determined as follows: Santa Fe Springs, 172,750,000 barrels; Torrance 32,790,000 barrels and Wheeler Ridge 10,944,000 barrels. The estimates for Huntington Beach, Long Beach and Santa Fe Springs are the average of a number of estimates of ultimate recovery per acre furnished the writers by several engineers. They are considered conservative but data of production after the fields have passed from the flowing stage may show them to be too high.

"The net addition of ultimate recoverable oil to the estimate of July 1, 1921, is, as of July 1, 1923, 448,567,000 barrels—making a total ultimate recovery since the development of the four new fields of the Los Angeles basin and Wheeler Ridge, in Kern county, of 3,543,567,000 barrels.

"The total proved area set by the committee as of July 1, 1921, was 101,935 acres. To this has been added proved acreages as determined by the state oil and gas supervisor as of July 1, 1923, for Santa Fe Springs, Torrance and Wheeler Ridge with adjustments also for Long Beach and Huntington Beach. This gives a revised total proved acreage of 106,843. The average ultimate recovery per acre is now 33,100 barrels per proved acre as compared with 30,400 barrels, the estimate prior to revision.

"The totals of the original and revised estimates are as follows:

Date of Estimate	Past Production	Future Production	Ultimate Production	Proved Acres	Ultimate
July 1, 1921	1,415,000,000	1,680,000,000	3,095,000,000	101,935	30,400
July 1, 1923	1,721,000,000	1,823,000,000	3,544,000,000	106,843	33,100

"In the above estimates the proved acreage is about 7000 acres lower than the total proved acreage for the state as determined by the Department of Petroleum and Gas of the State Mining Bureau. This is due principally to lower estimates for Midway-Sunset, Coalinga and Elk Hills oil fields. It is possible that these estimates approach more nearly the developed acreage within proved areas than the total proved acreages as determined by the Department of Petroleum and Gas."

California Shipments Are Up Again

LOS ANGELES, Sept.26.—This port made a gain of nearly 300,000 barrels in the quantity of petroleum exported from southern California during the seven days from September 15 to 21 inclusive. The week's oil exports amounted to 47 tankers with a total of 3,304,480 barrels of oil against 45 tankers with 3,021,216 barrels for the previous week.

Last week's shipments included 24 tanker loads for the Pacific coast trade, 19 loads for the Atlantic seaboard and 4 loads for foreign ports. The shipments were as follows:

September 15

W. F. Burdell for Philadelphia, 66,000 barrels crude for Pure Oil Co. Montebello for Martinez, 74,075 barrels crude for Union Oil Co. Col E. L. Drake for Richmond, 31,650 barrels crude for Standard Oil Co. Lubrico for Richmond, 66,200 barrels crude for Standard Oil Co. La Placentia for Martinez, 75,075 barrels crude for Union Oil Co.

September 16

J. A. Bostwick for New York, 75,000 barrels crude for Standard Oil Co. Strombus for Balboa, 54,000 barrels crude for Shell Company. Los Angeles for Martinez, 57,625 barrels crude for Union Oil Co. Paul Shoup for Avon, 66,000 barrels crude for Associated Oil Co. L. J. Drake for New York, 65,000 barrels crude for Standard Oil Co. H. T. Harper for Richmond, 32,800 barrels crude for Standard Oil Co. W. S. Miller for Richmond, 61,400 barrels crude for Standard Oil Co.

September 17

Byron D. Benson for New York, 86,550 barrels crude for Tidewater Oil Co. J. M. Denziger for New York, 56,975 barrels crude for Huasteca Oil Co. Solana for New York, 61,100 barrels crude for Pacific Mail Steamship Co. R. J. Hanna for Richmond, 62,650 barrels crude for Standard Oil Co.

September 18

J. N. Pow for Philadelphia, 99,650 barrels crude for Union Oil Co. Cerro Azul for Balboa, 66,750 barrels crude for Pan-American Petroleum Co. Belridge for Balboa, 66,650 barrels crude for General Petroleum Corp. Hulaco for Avon, 73,450 barrels crude for Associated Oil Co. Yorba Linda for Tokuyama, 64,680 barrels crude for General Petroleum Corp. La Purisima for San Diego, 45,275 barrels crude for Union Oil Co. James

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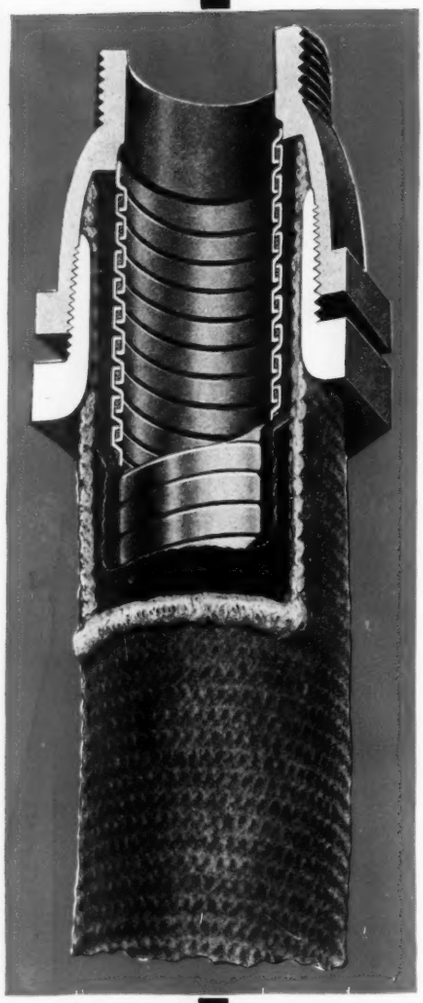

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Magee for New York, 100,200 barrels crude for Standard Oil Co. Agquisun for Boston, 63,425 barrels crude for Atlantic Refining Co. K. R. Kingsbury for Richmond, 66,900 barrels crude for Standard Oil Co. Frank H. Buck for Avon, 65,975 barrels crude for Associated Oil Co.

September 19

Devolenta for San Francisco, 76,650 barrels crude for Beacon Oil Co. F. Q. Barstow for New York, 100,300 barrels crude for Standard Oil Co. Walter Jennings for New York, 100,300 barrels crude for Standard Oil Co. Cathwood for Martinez, 76,650 barrels crude for Union Oil Co. W. S. Rheem for New York, 98,400 barrels crude for Standard Oil Co.

September 20

William F. Herrin for Avon, 42,600 barrels crude for Associated Oil Co. Lubrico for Richmond, 66,200 barrels crude for Standard Oil Co. Alameda for New York, 84,500 barrels crude for Standard Oil Co. La Placentia for Martinez, 74,075 barrels crude for Union Oil Co. Beacon Light for Boston, 65,700 barrels crude for Atlantic Refining Co. J. A. Moffett, Jr., for New York, 100,300 barrels crude for Standard Oil Co. Montebello for Martinez, 74,075 barrels crude for Union Oil Co. T. J. Williams for New York, 74,400 barrels crude for Standard Oil Co. La Purisima for Portland, 45,275 barrels crude for Union Oil Co.

September 21

Paul Shoup for Avon, 70,000 barrels crude for Associated Oil Co. W. N. Irish for Philadelphia, 80,000 barrels crude for Pan-American Petroleum Co. W. S. Miller for Richmond, 70,000 barrels crude for Standard Oil Co. Lebec for Martinez, 70,000 barrels crude for General Petroleum Co. Nevania for Fall River, Mass., 75,000 barrels crude for Standard Oil Co. Trimountain for Everett, Mass., 75,000 barrels crude for General Petroleum Co. R. J. Hanna for San Francisco, 70,000 barrels crude for Standard Oil Co.

California Refineries Reduce Output

CLEVELAND, Sept. 27.—Operations of refineries in California in August were at a lower rate than in July, statistics just put out by the Bureau of Mines office at San Francisco show, average daily runs of crude in August being 435,652 barrels as against 450,344 in July. Gasoline output in August was 109,165,919 gallons and 121,212,438 in July. Stocks of gasoline Sept. 1 were 153,605,104 gallons as against 136,585,654 gallons Aug. 1, an increase of 17,019,450 gallons.

Kerosene output remained almost the same being 16,399,772 gallons in August as againsst 16,285,670 gallons in July. Stocks declined from 27,436,485 gallons Aug. 1 to 23,275,804 gallons Sept. 1.

Gas and fuel oil production amounted to 323,676,544 gallons in August as against 379,802,939 gallons in July. Stocks increased from 474,237,821 gallons Aug. 1 to 489,170,434 gallons Sept. 1.

Lubricating oil output fell slightly from 7,488,351 gallons in July to 7,072,812 gallons in August. Stocks increased from 12,293,950 Aug. 1 to 13,186,679 gallons Sept. 1.

The bureau report is based on returns from 39 refineries with an indicated capacity of 435,652 barrels daily throughput which were operating at 91 per cent of capacity. July report was from 39 refineries with indicated capacity of 465,440 barrels daily which were operating at 95.6 per cent of capacity.

PRODUCTION SECTION

Near Decline Calls For New Oil Fields

Staff Special

LOS ANGELES, Sept. 28.—An old injunction handed down through the ages gives the admonition "in time of peace prepare for war." Its modern counterpart as applied to the petroleum industry has to do with preparing for the famine that follows the feast.

Dr. W. A. J. M. van Waterschoot van der Gracht, director of the Marland Oil Co. and formerly for 15 years head of the Geological Survey of Holland, sounds the present warning. In his paper before the Los Angeles meeting of the American Association of Petroleum Geologists, which was read by President Max Ball in the absence of the author, he decries the wasting of domestic resources through over-production at times when consumptive demand fails to absorb it and says:

"In order to be able to supply future demand, new discoveries are urgently needed to offset the imminent decline of the few present flush pools which now supply 45 per cent of the production from only one and three fourths per cent of the existing oil wells."

Dr. Van der Gracht estimated that 1923 production would just about equal estimated domestic consumption of 700 million barrels, but that such huge production was possible only through a concurrence of special circumstances "which cannot be but temporary and can scarcely occur anew." Straight line projection estimates of production would have normally placed this record recovery of petroleum in the year of 1926 or 1927, but Dr. Van der Gracht took the position the earlier reaching of this level must be "paid for" later on.

Outlook for Future

On a basis of 285,000 wells producing approximately 2,250,000 barrels daily, he placed them in four classes producing as follows:

Two hundred fifty thousand barrels daily from 250,000 wells producing one barrel each; 250,000 barrels from 15,000 wells producing 16 barrels each; 500,000 barrels from 15,000 wells averaging 33 barrels each; and 1,250,000 barrels from 5000 wells averaging 250 barrels each.

Only 500,000 barrels of this total 2,250,000 barrels daily production, he said, would decline slowly; 500,000 barrels might be expected to decline to 200,000 barrels daily in three to five years; and the bulk of 1,250,000 barrels he described as due to decline to less than 600,000 barrels in one year.

Continuing he said:

"It is estimated that within a year not less than $1,000,000,000 will have to be spent on drilling alone if we want to stabilize the market and prevent exorbitantly high prices to succeed the present ruinously low ones.

"The present entirely too low prices are not warranted by present conditions, but are the result of an unsatisfactory organization of the industry and lack of co-operation between its leaders.

"The petroleum industry of the United States has grown so large and become of such vital importance to the country, that it cannot any longer afford to carry the stigma of being mere speculation; it can only count on the support of sound investors if it can promise tolerably stable returns without such frequent fluctuations between prosperity and depression.

"Petroleum plays such an important part in industry that its cost to consumers cannot be allowed to fluctuate any longer between such excessively wide margins:

"Conservation of by no means inexhaustible natural resources is urgently needed and further waste must be prevented without any delay.

"The United States Geological Survey warns us that we can be none too sure of our future supply of oil, obtainable in this country. Consumption increases ever faster and production capacity is at, or very near, its peak; available unmined resources can be fairly accurately estimated and have become appallingly restricted.

"The public has to be educated to the fact that our domestic reserves must be protected, in order to, as long as possible, postpone the near day that we will have to look to other far more costly sources of supply."

Homestake Gets Largest Well At Sunburst

GREAT FALLS, MONT., Sept. 27.—Operators in the Sunburst district are beginning to wonder whether some magic is attached to number three. The latest well in the field so numbered to respond is the Homestake Exploration Co.'s No. 3 Howling, which has recently flowed at an estimated rate of 2400 barrels daily.

Three weeks before the well broke loose with the big flow it had been completed as a pumper, good for about 150 barrels. It was swabbed the day the big flow started. Three days after it had established itself as a big well, the flow increased and for a time it made 170 barrels an hour which is the biggest in the field to date.

This well is the No. 3 Howling, in the northeast of 9-35-2. The Mid-Northern Oil Co.'s No. 3 Howling was also a big well, drilled some months ago, and is likewise in the northeast of the same section, being close to a quarter of a mile southwest. In the next section to the north Sec. 4, the Ohio Oil Co.'s "number three," two locations from the Homestake well, was one of the best wells in the field, making as high as 2000 barrels a day.

Powell Extension Well Starts Fireworks

CORSICANA, TEX., Oct. 1.—With a half-mile extension to the southwest by the Buttram-Tidal's No. 1 Phillips, the Powell field drilling boom has broken out anew with some 50 wells preparing to drill in the new area.

The effect of the new drilling is not expected to be reflected in the slumping production figures for some time to come as operators had held off in the new area until the Phillips test had definitely become a producer. This is in distinct contrast to the practice in the earlier history of the field when new territory was opened up with a dozen or more completions in rapid-fire order.

Hesitation in new operations in this section was increased by a disappointing showing of the Gulf's No. 1 O. C. Barron on the farm adjoining the Phillips on the south which has so far failed to make a producer at the usual depth. Some operators contend that the field is not limited in this direction and that the Gulf's casing was set too low which accounts for its failure to flow. This well is reported to be drilling deeper.

Depth of the Phillips well is given at 2970 feet and its initial production at 4800 barrels.

Completions were few and unimportant for the past week, aside from the Phillips well, and production had again dropped at the end of the week. The only completion of size was the Buttram-Tidal's No. B-8 Ramsey with 4500 barrels initial.

Big Gas Flow Struck In Lake Basin

BILLINGS, MONT., Sept. 29.—Interest in southern Montana now centers on the deep test of the Mid-Northern Oil Co., which is located in the northeast quarter of 26-1-22, Stillwater county, Lake Basin field and about 40 miles northwest of Billings. A flow of gas was encountered in sand which was topped at 2980 feet and which increased as drilling continued until it finally reached a gauged volume of 12 million feet, total depth 3166 feet. The formation is the middle Colorado. At 1250 feet a strong flow of gas was obtained in the Eagle sand.

In southeastern Montana, the important test of the Absaroka Oil Development Co.-Florence Oil Co. is drilling below 3600 feet. This is in Fallon county on the Cedar Creek anticline.

Rushing Refinery Work

CASPER, Sept. 29.—White Eagle Oil & Refining Co. is making good progress in construction of its refinery five miles east of Casper and expects to be ready to operate by the first of next year. More than 100 men are at work and erection of tankage totalling 300,00 barrels is soon to be started.

Tillman County Well Is Extension Of Red River Pool

By Special Correspondent

FORT WORTH, Sept. 29

MORE 700 and 800-barrel wells in the new North Archer county pool, a slight extension of the Ibex deep pool, in Shackleford-Stephens counties, and a new well in Tillman county, making a northward extension of the Red River pool, bone of contention between two states for three years, from the chief points of interest in the week's news from the North-Central Texas oil fields.

The Archer county wells are all inside locations, and are of interest only for their large initial production. There is a small amount of wildcatting in progress in Archer and Wichita counties at this time, though there are no new developments.

The Ibex pool extension was provided by the Miller Brothers No. 1. J. W. Byett, on the west line of Stephens county, and a short distance southeast of production. The new well was rated good for 400 to 500 barrels, from the 3640-foot pay. There are several other outside wells drilling in this area, the 3600 foot pay, and the 2900 foot level, recently opened up in the Ibex field, by the Humble, both proving attractive.

The new Red River well is the No. 1 Porter of the Staley Oil Co., in 5-5s-14w Tillman county. It made 100 barrels, sand at 1520 feet, and is located only a short distance from holes abandoned as dry three years ago, when the Burkburnett Northwest boom was at its height, and wildcatters sought to extend the pool across Red River.

This new well is the fourth producer to be completed west of the Grandfield bridge, since the lands north of the middle of the river were released to the riparian owners.

There have been no changes in the market situation, as it affects the North Texas district individually. Instances of spot sales of crude at $1 a barrel continue to be reported, while Independent refineries have made sales of tank car gasoline as low as 6 cents a gallon, according to reports from Wichita Falls.

Reports from San Angelo and the Big Springs territory, Reagan county, where the Texon Land & Development Co. brought in its wildcat in the early summer, indicate preparations by big companies and individuals alike for drilling operations to be centered around the Texon well, which has been producing at the rate of 150 barrels daily practically since it was first drilled into the sand. The Texon No. 2 is reported at sand depth, and No. 3 is drilling several hundred feet. The Magnolia, Gulf, Carter, Pure Oil, Transcontinental, Texas, Sun and Texas Pacific companies are among those reported as already holding extensive blocks of acreage, in addition to the discovery company, the Texon Land & Development.

Daily Average Production of Texas Fields for Week Ending Sept. 29.

	Sept. 29	Sept. 22
Mexia-Currie	46,975	48,170
Corsicana-Powell.	160,000	150,000
Wichita Falls Dist.	68,440	67,120
Ranger Lime	34,195	35,500
Ranger sand, Young and Shackelford Counties	11,000	11,000
San Antonio, Luling and Mirando	38,500	36,500
Coastal Texas ...	87,000	85,490
Coastal Louisiana	7,000	7,220
Total	453,110	441,000

Mid-Continent Pioneer Dies In Okmulgee

OKMULGEE, Sept. 27.—Frank Chesley, who, with Robert Galbreath, drilled the discovery well in the Glenn Pool, died here Sept. 23, following a stroke of apoplexy. He was 57 years of age.

The discovery well of Galbreath & Chesley was located on the Ida E. Glenn farm, now one of the properties of The Texas Co., and it was from this farm that the Glenn Pool derived its name. Ida Glenn No. 1 was drilled in Nov. 22, 1905, and was located on a 40-acre lease out of the 160-acre allotment. It was reported as a 75-barrel well, but the second well on the lease came in for 800 barrels or so.

Legend has it that Galbreath and Chesley were offered a million dollars for their lease by the Standard Oil Co., but that they indignantly refused the offer, both violently disliking the big company. The price of oil went as low as 39 cents a barrel, and the partners finally were forced out with almost nothing to show for their glorious adventure.

While Galbreath has since again made a success, Chesley never did get back on his feet again, and was in only moderate circumstances at the time of his death. The Glenn Pool developed into one of the greatest fields in the history of the industry, and Tulsa, now the metropolis of oil, owes its first big strides to the little wildcat well drilled in by Frank Chesley and his partner.

Receivers Are Named

FORT WORTH, Sept. 29.—Dan F. Lydick of Fort Worth and C. F. Spencer of Wichita Falls were named receivers of the Oil Operators Trust Co., in a friendly suit filed by trustees of the company Sept. 22. Both Spencer and Lydick were active in the management of the company before the receivership. The chief assets of the Oil Operators Trust are in the Arkansas fields.

Newspaper In Salt Creek

CASPER, Sept. 27.—W. J. Stull, formerly of the Greybull Tribune, is moving a printing plant to the new town of Salt Creek, which is being promoted by the Haskell interests in the south end of the field. Stull will run a newspaper there.

WICHITA, KAN., Sept. 28.—Ralph O. Rhoades and W. H. Thralls have formed a partnership to engage in geological investigations and appraisals. Their offices are 421-422 Union National Bank building, Wichita. Mr. Thralls has occupied the offices alone since the first of this year.

Completions North-Central Texas Week Ending September 29

WICHITA FALLS DISTRICT

Burkburnett

Company	Well No.	Lease	Depth	Production
Magnolia Petroleum	20	Hortoin-Walker	1140	10
Magnolia Petroleum	95	Reilly	730	5
A. D. Robinson	6	Fee	1840	40
A. D. Robinson	4	Roller	1160	35
A. D. Robinson	5	Roller	1220	40

Iowa Park

Duncan & White	1	Rhoades	1270	60

Electra

Ryan Petroleum Co	10	Nance	1300	50
The Texas Co	283	Waggoner	1950	100
McClure & Browning	1	Henson	1800	Aband.
Scott Petroleum	7	Ward & Todd	1820	Junked
Roark & McCulley	1	Cody	350	Aband.

Archer County

Dickson & Meadows	1	Wilson	1640	Aband.
Payne et al	3	Wilmot	1600	50
J. W. Sweatt et al	4	Wilmot	1430	Aband.
The Texas Company	3	Carter Bros	1580	380
Sunshine State	5	Carter Bros	1580	400
Sunshine State	7	Carter Bros	1580	300
A. T. Sibley et al	4	Wilmot	1590	375
Hawkins & Hester	1	Carter Bros	1580	700
Bridwell & Heydrick	1	F. May	1580	800
Chenault, Lea & Johnson	1	Wilson	1585	300

Archer County (South Wildcat)

Taylor Bros	2	Herron	1020	Aband.

GENERAL RANGER TERRITORY

Young County

Company	Well No.	Lease	Depth	Production
Eureka Oil Syndicate	1	Harrell	4050	flowing and swabbing 40 bbls., will shoot.
Simms Oil Co	3	Lynn	2650	80 bbls., while shut down for pipe line
Shamrock Oil Co	2	Bower	1560	50
Sun Oil Co	1	Whittenberg	4000	Aband.

Stephens County

Miller Bros	1	J. W. Byett	3640	400
Admiral Oil Co	1	Sloan	3690	Aband.

Eastland County

Kirk & Brewer	2	Shugart	2840	125 bbls., oil, 5 m. gas.
Gholson et al	1	Shugart	2880	45
The Texas Co	1	Clark	4130	50 bbls., some water, shot 200 qts.

Palo Pinto County

D. A. Upham	1	Warden	3820	Aband.
Dalton Oil Co	2	Dalton	4060	Aband.

Brown County

Bailey et al	1	M. L. Cleveland	1450	½ m. foot gasser

Scurry County

Stanton Oil & Gas Co	1	J. W. Riley	3500	temp. aband.

Sale Of Waite Phillips' Production Chief Mid-Continent Event

By A. F. Hinton
STAFF REPRESENTATIVE

TULSA, Sept. 29

COMPARED with the two immediately preceding it, the past week has been quite uneventful; there was no further tampering with the price of crude oil in this territory, nor were there any further announcements of changes in the official family of the Prairie Oil & Gas Co. Even martial law ceased to be a topic of discussion, as far as Tulsa is concerned, the center of interest in that regard having been Oklahoma City, where the governor dispersed by force of arms the members of the house of representatives who attempted to hold an extraordinary session. Tulsa was greatly interested, however, in the governor's telegram to **National Petroleum News**, in which he gave assurance that the military forces would not interfere with the International Petroleum Exposition, but that they would, in fact, co-operate for its success.

Some interesting things happened during the week, however, and some things would be more interesting if more could be told about them. There was, for instance, the sale by the Waite Phillips Co., of all its production in the Burbank field at a reported price which indicates that the purchasers got a real bargain. Also, there was the sale by Skelly Oil Co. of 1,250,000 barrels of Burbank oil out of storage. The first-mentioned sale was to the Mid-Kansas Oil & Gas Co., subsidiary of the Ohio Oil Co. The other sale was to the Standard of New Jersey, which has been a heavy buyer of Mid-Continent crude in the past few months.

The Waite Phillips Co. is believed to have received about $6,000,000 for production amounting to something over 7000 barrels a day, most of it high-gravity Burbank crude. According to latest available figures, the company's Burbank production amounted to 8900 barrels from 24 wells. Of this amount, however, 3890 barrels coming from one lease in the Kay county extension area of the field, is a half-interest, the other half belonging one-fourth to Skelly Oil Co., and one-fourth to Phillips Petroleum Co. Although the company would not state the actual consideration involved, it is believed that the figure given is a fair approximation.

A deal such as this gives some indication of what the producer is up against in times of proration and lack of ready market for crude. In this instance, the Waite Phillips Co. was faced with the necessity of caring for more than 4000 barrels of crude daily, that being about the 75 per cent not being run by the pipe line companies at present. To provide sufficient storage to handle this amount of oil for any length of time would mean the expenditure of a great deal of money, and it would be a considerable gamble as to whether or not it would turn out to be a profitable venture. The only other alternative, however, is for the producer to sell at a sacrifice, production which has been developed at great expense.

The announcement was made, in connection with the Waite Phillips deal, that it is the purpose of the Mid-Kansas Oil & Gas Co. to move its operating offices to Tulsa from their present location at Mineral Wells, Texas. It is believed that the company's purchase of a property of such magnitude means that it will become very active in the Mid-Continent field, and if so, it will undoubtedly be an important factor in the field's future development. Certainly it has acquired an excellent nucleus about which to build up important production.

Producers undoubtedly are hard hit at present, and it appears that an early lifting of proration is the only thing that will save the situation for many of them. Crude prices are ruinously low, but lack of a market is at present a more serious difficulty. In theory, the thing to do is to build tanks and store that oil that cannot be sold under existing conditions, but in practice, this is impossible of accomplishment for many producers. It costs, say, 50 cents a barrel to provide steel storage, without reference to other charges incident to a storage program, such as evaporation losses, interest on investment, insurance, etc., and when one has 10,000 barrels daily production and can sell only 2500 barrels of it, it doesn't require a slide rule to figure that providing storage for that amount of excess crude is a proposition that runs into big money.

The Prairie, with something like 8,000,000 barrels of storage room, in tanks long since paid for, as yet gives no indication that it considers the storage of Mid-Continent crude an attractive business propostion at this time, and stated, when it cut the price recently, that it had no intention of embarking upon such a program at present. The only thing that can be deduced from that is that either the Prairie does not consider that the bottom of the crude market has been reached, or else it does not look for crude prices to go materially higher for some time to come. It is reasonable to believe that it would not hesitate to begin taking all the oil and storing the excess if it believed either of these premises to be correct.

The Independent producer, then, is faced with the problem of financing a storage program at a time when the leading purchasing company in the field evidently does not believe such a program to be good business, and at a time, also, when obtaining money for any oil proposition appears to be well-nigh an impossibility. If he is unable to do this, or if he is convinced that it would not be good business for him to do so, he is faced with the alternative of selling two-thirds to three-fourths of his production at bootleg price if he can get it, or shutting in his wells.

It is generally believed that the Prairie from this time on will begin gradually to lift proration, following its usual custom of not saying anything about it. In the past, the company has announced the beginning of proration, but has deemed it wise not to announce a lifting of it, but instead gradually to increase its runs until all the oil was again being taken. It announced when crude prices were lowered, that it would at once increase its runs from many of the old small-production-per-well properties, and would even try to clean up the accumulated storage on them. Since then, word has come in of increased runs here and there in other districts, and it is believed that this will become general within a short time.

The difficulty now being experienced by even the larger Independent companies is well exemplified, not only by the almost complete cessation of development work, but also by the sharp reduction of forces which most of them have adopted as an expedient for relief. Some companies have reduced the organizations to the merest skeletons, and have offered materially reduced salaries to those employes retained as necessary to keep things moving at all. Engineers and geologists have become inured by experience to being the first

Oklahoma and Kansas Estimated Daily Average Production

Oklahoma	Sept. 29	Sept. 22
Bristow	53,200	55,300
Burbank	99,416	101,294
Cushing	24,500	25,000
Healdton	16,750	16,750
Hewitt	22,500	21,675
Tonkawa	55,650	58,614
Osage, except Burbank	28,000	28,500
Oklahoma, general	114,000	115,300
Total	414,016	422,433
Decreas	8,417	

Kansas	Sept. 29	Sept. 22
Augusta-Douglass	4,000	4,100
Blankenship Dist.	2,675	2,800
Elbing-Peabody	8,530	8,700
Eldorado	18,100	18,185
Florence district	3,300	3,360
Fox-Bush	6,500	6,505
Greenwood County	17,000	17,275
Leon & Weaver	1,575	1,600
Kansas, general	12,700	13,000
Total	74,380	75,525
Decrease		1,145

to be "let out" when hard times come upon us, and this time has been no exception to that rule. In some instances, these departments have been done away with almost entirely. Land and accounting departments also have been severely reduced in personnel, while in the field, forces have been reduced to an absolute minimum.

Current Production

Production in Oklahoma continued the decline which has characterized it for the past 90 days, and has now fallen to 414,016 barrels, as compared with 422,433 barrels the preceding week. This is a decline of 8417 barrels. Burbank contributed to this decline to the extent of about 1900 barrels, and has gone below the 100,000-barrel-a-day mark for the first time in several months. Its average during the past week was 99,416 barrels, as compared with 101,294 barrels the preceding week. Tonkawa continued to slide, declining 3000 barrels to 55,650 barrels daily, as against 58,614 barrels last week. With the exception of the Wewoka field, in Hughes and Seminole counties, all fields in the state declined more or less, or remained practically stationary. Wewoka, which is at present the most active new field in the state, averaged about 13,000 barrels daily during the week.

Oklahoma thus has declined 116,000 barrels in daily average production since it reached its peak of 530,000 barrels in June. With the exception of Tonkawa, which has suffered through natural depletion, practically all of this decline has been brought about by a shut down of drilling following the loss of a market for Mid-Continent crude. It thus does not represent a permanent loss, as the state probably could be brought back to something like 500,000 barrels a day with little trouble if drilling could proceed unrestricted, even without the discovery of new fields. Burbank alone could be making probably 70,000 barrels a day more than it is at present, if all the wells now shut down on top of the sand should be drilled in, and if development of leases could proceed unhampered.

Wells Completed

Completions during the past week again sank to hitherto unheard-of depths, only 53 of them having been reported. The previous record low mark was reached two weeks ago, when 55 completions were recorded. The 53 reported this week were divided 38 oil wells, four gas wells, and 11 dry holes. This compares with the previous week's figures of 71 completions, of which 44 were oil wells, six were gas wells, and 21 were dry holes. Some fair-sized wells were included in this week's report, the best being one of 2800 barrels initial, in the Wewoka field, Hughes county. The 38 oil wells included in this week's figures had a total initial production of 7987 barrels, an average per well of 210.2 barrels. Last week, 44 wells brought in only 5861 barrels of new production, with the small per-well average of 133.2 barrels. The four gas wells brought in during the past week had a total initial volume of 25.5 million cubic feet.

Completions in Kansas are almost at the vanishing point, as operations are even more at a standstill in that state than in Oklahoma. During the past week, only five wells were completed in the Sunflower State, there being two oil wells and three dry holes. The two new wells, one of which was in Cowley county and one in Greenwood, were of respectable size, averaging 125 barrels.

New Refinery Starts

TULSA, Sept. 29.—The Misko Refineries, Inc., of Laredo, Tex., announces the opening of its refinery at Mirando City on Sept. 20. The plant has a capacity of 1,500 barrels per day and will feature zero test lub oils and gas and fuel oils. It will have terminal facilities at Port Aransas.

O. W. Killam is president of the corporation, Colon Schott, vice president, S. P. Coblentz, secretary and W. T. Killam, treasurer. The corporation is associated with the following producing companies: Mirando Oil Co., Schott Oil Co., Killam-Condren Oil Co., Miami-Laredo Oil Co. and Neuva Oil Co. It will be under the same management as the Texpata Pipe Line Co.

Starts Oil Delivery

CASPER, Sept. 26.—Fargo Oil Co. has started delivery of oil through its new line from the Poison Spider field to the Midwest Refining Co. at Casper. Contract calls for delivery of one million barrels at $1 per barrel. This is a heavy asphaltic oil.

TULSA, Sept. 29.—Harry F. Wright, consulting geologist, has moved his offices to the Nowata Oil & Refining Co. building, 210 S. Cheyenne, Tulsa. He was formerly located in the Cosden building.

Completions In Oklahoma And Kansas For Week Ended September 29, 1923

Company	Well No.	Location	Depth	Initial Production
OKLAHOMA				
Carter County				
Magnolia	2	NW NW 25-2S-3W	2001–2017	850
Caddo County				
Christian & Wilson	1	SWc NE 5-5N-9W	T.D.2150	Dry
Creek County				
Transcontinental	1	CEL NE 26-17-8	T.D.3700	Dry
Charles Page	11	SWc NE 5-18-7	2483–2523	50
Texas Co	7	NEc SE 35-16-9	2925–2926	100
Roxana Pet. Co	2	SW SE 8-15-8	3726–3806	75
Roxana Pet. Co	3	SW SE 8-15-8	3760–3805	682
Waite Phillips Co	1	SWc NE 30-15-8	3309–3310	12M
Phillips Pet. Co	1	SW SW 4-15-9	2900–2902	310
Phillips Pet. Co	2	SE SW 4-15-9	2909–2911	290
Roxana et al	2	SEc NE 5-15-9	2925–2926	75
Eva Bell Oil Co	1	NW SE 17-18-9	2850–2864	4M
Garfield County				
Sinclair Oil Co	11	SE SE 25-22-4W	2185–2207	25
Sinclair	12	NE SW 36-22-4W	1123–1152	80
Sinclair	4	NE SW 36-22-4W	2196–2217	40
Crews Heirs O. & G. Co	12	SWc SE 19-22-3W	1500–1515	25
Crews Heirs O. & G. Co	13	NW SE 19-22-3W	1430–1440	22
Sinclair O. & G. Co	11	SW SW 19-22-3W	2135–2158	25
Garvin County				
Garland Oil Co	1	NW NE 27-2N-1W	T.D.2501	Dry
Magnolia Pet. Co	4	SW SW 9-1N-3W	1576–1595	5
Magnolia	3	NE SW 10-1N-3W	1551–1561	40
Texas Pacific C. & O. Co	6	SE NE 16-1N-3W	1567–1575	35
Kay County				
Marland & Cosden	2-A	NEc SE 33-25-1	2547–2555	50
Lincoln County				
Union Pet. & Supply Co	1	SEc 2-14-6	4082–4083	430
McIntosh County				
Flesher	2	SE NW 29-12-14	T.D.2900	Dry
Muskogee County				
J. L. Slusher	3	NW NE 27-15-16	1612–1650	1M
Noble County				
Comar Oil Co	9-A	SW SW 2-24-1W	2615–2641	190
Comar Oil Co	10-B	SE SW 2-24-1W	1903–1915	218
Comar Oil Co	13-A	NW SW 2-24-1W	2524–2562	45
Comar Oil Co	18-B	NW SW 2-24-1W	2027–2065	66
Comar Oil Co	12	SW NE 2-24-1W	1956–1997	50
Comar Oil Co	12-A	N½ NE 3-24-1W	2532–2586	25
Comar Oil Co	12-B	CNL NE 3-24-1W	1841–1865	476
Comar Oil Co	17-A	NW NE 3-24-1W	2051–2075	275
Okfuskee County				
Empire	1	NW SE 19-11-10	2521–2539	8½M
Okmulgee County				
Johnson	6	NW NE 33-15-14	T.D.1706	Dry
Preferred Oil Corp	6	SE NE 2-14-11	T.D.2910	Dry
W. B. Pine	1	NE SE 33-12-12	T.D.2503	Dry
Oklavania Oil Co	1	NW NW 23-15-11	2837–2848	60
H. G. Fair	2	NE NE 1-12-11	2521–2539	125
Osage County				
Sand Springs Home	1	SEc 10-20-11	2310–2320	50
Verland Oil Co	4	SE NE 17-21-12	3340–3380	30
Adlum et al	1	SEc NW 8-23-10	2123–2138	75
J. R. Hadley	1	SEc NW 27-29-11	976–1017	50
Winona Oil Co	1	SE SW 25-24-9	T.D.2225	Dry
Osage—Burbank				
Sinclair Oil Co	13	NE NE 19-27-6	2896–2955	100
Pawnee County				
Watchorn Oil Co	2	NW SE 17-20-6	T.D.3800	Dry
Payne County				
Oklahoma P & R Corp	1	NW SW 8-18-4E	3633–3678	10
Seminole County				
Independent et al	1	NW SE 32-8-8	3168–3183	335
Producers & Refiners	2	NW NW 33-8-8	3136–3141	2800
Stephens County				
Champlin & Winkler	3	NW SW 29-1S-8W	T.D.2313	Dry
Lone Star Gas Co	2	SE SW 5-2S-6W	T.D.3271	Dry
Tillman County				
Staley et al	1	NEc SE 7-5S-14W	1522–1530	100
KANSAS				
Butler County				
Cascade Oil Co	4	NE SE 7-26-7	T.D.2812	Dry
Shawver & Sutter	1	NEc 22-28-5	T.D.2794	Dry
Cowley County				
J. A. Hull	1	NEc SW 24-32-4	2328–2356	100
Greenwood County				
Fisher, Lauck et al	6	SE SE 5-23-11	1949–2002	150
Texas Co	1	SWc SE 18-22-11	T.D.2630	Dry

New Gas Producing Sand Is Found In Bossier Parish

SHREVEPORT, Sept. 29

THIRTY-TWO completions, of which six were gassers, four failures and 22 producing wells with combined initial yield 4055 barrels, was the record in the Shreveport territory embracing Arkansas and North Louisiana fields, during the week just ended. This was a decline of 3280 barrels in initial yield compared with the previous week's record of 42 completions, including one gasser, six failures and 35 producers yielding a total of 7335 barrels.

The daily average production also showed a decline, amounting to 7343 barrels, the week's daily average totaling 184,784 barrels.

Discovery of a new gas producing sand in north Louisiana at a depth of 2450 feet, four miles north of Elm Grove, Bossier parish, gas area, approximately 900 feet lower than the Elm Grove gas wells, by the completion of a nine million foot gasser by Snyder and Skannal in 13-17-12, was the outstanding feature of the week's activities. The well is the Railroad Lands Co. No. 2. It is in an entirely new formation, and is just west of a line drawn from the Bellevue shallow oil field near Princeton. J. Y. Snyder, senior member of the firm which brought in the well, had been drilling for several months in that area in an effort to prove the existence of another formation where a gas or oil deposit could be picked up at a deeper level than the Elm Grove sand. The well is considered of importance, not only on account of a new gas producing sand but also because of increasing the potential gas supply for Shreveport. Snyder also brought in the Bellevue field.

Another feature of the week was the announcement by the Atlantic Oil Producing Co. of a cut in the prices of Stephens Ark., crude and the adding of three new grades. Top price for 30 and above is 90 cents and below 22 it is 50 cents per barrel.

SHREVEPORT, Sept. 29.—Daily average production in the Shreveport territory, including Arkansas fields, during the week just ended totaled 184,784 barrels, a decrease of 7,343 for the week. Increases were shown in Caddo, light and heavy, and in DeSoto-Red River but all other districts recorded declines.

By districts the daily average for the week ended Sept. 20 and Sept. 27 was as follows:

Daily average	Sept. 27	Sept. 20
Caddo, light	8,420	8,210
Caddo, heavy	2,350	2,312
DeSoto-Red River	6,720	6,710
Haynesville	24.850	25,620
Homer	9,642	9,722
Bellevue	6,180	7,912
El Dorado	18,122	19,162
Smackover	105,250	108 867
Stephens	3,250	3,612
Total	184,784	192,127
Decrease		7,343

By districts the initial production record, compared with that of the previous week, was as follows, showing the great bulk of new production still coming from Arkansas fields:

Haynesville, Louisiana: one producer, initial yield 75, and one failure; no completion the week before.

Caddo, Louisiana: one 20-barrel producer; one 350-barrel producer the week before.

Bellevue, Louisiana: 5 producers, combined initial yield 345 barrels; 4 producers yielding 335 barrels, and 2 failures, week before.

Elm Grove, Louisiana: one gasser; no completion the week before.

Morehouse parish: one gasser; none the week before.

Ouachita parish: 3 gassers; one gasser the week before.

Stephens, Arkansas: 2 producers, total initial yield 130 barrels; 8 producers yielding 355 barrels the previous week.

Smackover, Arkansas: 17 completions, of which 3 were failures, one a gasser, 13 producers, with combined initial production 3485 barrels; 20 completions the week before, one being a failure and 19 producers yielding 5835 barrels.

El Dorado, Arkansas: no completion this week; 3 producers yielding 450 barrels the week before.

Claiborne parish, Louisiana: no completion; one failure the week before.

Completions In Louisiana And Arkansas Week Ended Sept. 27

LOUISIANA

Haynesville

Company	Well	Depth	Location	Yield
Craig et al	C. W. Seegars No. 1	26-23-8	2840	s. w. aband.
Gilliland Oil Co	J. R. Sherman No. 1	26-23-8	2840	75

Caddo Parish

Dixie Oil Co	Robertshaw No. 54	14-21-15	1680	20

Bossier Parish—Bellevue

Humble O. & R. Co	Roy B. & W. No. 18	15-19-11	365	30
Humble O. & R. Co	Roy B. & W. No. 19	15-19-11	370	25
La. Oil & Ref. Corp	Fee No. D-17	15-19-11	365	15
Olmstead et al	Strange No. A-9	23-19-11	300	250
La. Oil & Ref. Corp	Fee No. D-7	15-19-11	368	25

Bossier Parish—Elm Grove

Snyder & Skannal	R. R. Lands Co. No. 2	13-17-12	2450	5 m. gas

Morehouse Parish

H. S. Morris	Snyder No. 1	34-20-5E	2295	6 m. gas

Ouachita Parish

Potts, trustee	Stanley No. 2	32-19-5E	2250	7 m. gas
Standard Carbon Co	Lieber No. 1	23-19-5E	2260	3 m. gas
Texas Co	Gibbs No. 2	20-19-5E	2240	20 m. gas

ARKANSAS

Stephens

Ark. Invincible Oil Corp	Williams No. A-2	30-15-19	2100	110
Standard Oil Co	Pounds No. 1	18-15-19	2185	20

Smackover

Mangis Oil Co	Mangis No. 1	24-15-17	2280	250
Lanier et al	Brown No. 1	25-15-17	2295	100
Louann-Smackover Oil Co	Mangis No. 3	24-15-17	2290	200
Crawford & Sebastian	Graves No. 1	3-16-15	2010	450
Gulf Refining Co	Murphy-Hardy No. 6	3-16-15	1995	15
Gulf Refining Co	T. C. Goodwin No. 5	16-16-15	2060	150
Magnolia Pet. Co	W. A. Smith No. 1	31-15-16	2250	250
Smitherman-McDonald	Saxon No. A-2	32-15-16	1945	200
Chew et al	Smith No. 1	17-16-15	2040	600
De Lukee et al	Harrell No. 1	17-16-15	2080	600
Dunn Oil Co	Smith No. 1	18-16-15	2050	250
Federal Pet. Co	Hicks No. 1	20-16-15	[illegible]	200
Higgins Oil & Fuel Co	Murphy No. A-1	14-16-1[illegible]	1985	120
J. L. Nelson	McClannahan No. 1	6-[illegible]-15	1995	dry aband.
Scott et al	Flannigan No. 1	[illegible]-16-15	1995	dry aband.
H. K. Tarver et al	Flannigan No. 1	6-16-16	2010	dry aband.
Vaughan & Gray	Lawton No. 1	[illegible]-16-15	2065	100
Wood & Palmer	Primm No. 1	1-16-[illegible]	2290	20 m. gas

Prairie Superintendent Leaves Company

TULSA, Sept. 26.—John C. Bennett, production superintendent for the Prairie Oil & Gas Co. for many years, and one of the best known production men in the Mid-Continent field, has resigned, and will take a long rest in an effort to regain his health. He will be succeeded by John Wolfe, who has been one of his assistants for the past six years.

Mr. Bennett, whose knowledge of drilling and sand conditions in the Mid-Continent field is reputed to be broader than that of any other man, has been connected with the Prairie organization for about 20 years, being one of the company's oldest employes. He started in with the company as a drilling contractor, and served under James O'Neil before the latter came west to take charge of the Prairie. On account of the condition of his health, it is said that he has been trying for a year to get the company to accept his resignation.

John A. Wolfe, who succeeds Mr. Bennett, is from Tionesta, Pa., and is a brother of Frank Wolfe, who has been successful as a drilling contractor in Oklahoma. He has followed the oil business since he was a boy, and has been employed by various Standard subsidiary companies throughout his career. Aside from his long experience in this country, he served for five years in Borneo as superintendent of production for the East Indian division of the Standard Oil Co. His assistant on that assignment was Charles Bennett, a brother of John C. Bennett. Charles died of wounds in France, after having made a name for himself through his heroic exploits.

H. P. Rhees, another Prairie employe of 20 years' standing, will be Mr. Wolfe's assistant.

Promoters, Seeing Decline Set In, Ease Up In Activity

LOS ANGELES, Sept. 26

IT BEGINS to look as though southern California is on the way back to normalcy. The big drilling program is easing off with surprising rapidity, and the wily oil promoter, like the Arab, appears to be folding up his tent and si.ently slipping away.

As the frenzy subsides in the big fields of the Los Angeles Basin, the big operating companies are making adjustments which forecast a more orderly manner of development. Geography alone appears to have saved Torrance and Compton, the newest proven fields in the south end of the state, from a repetition of the town-lot drilling craze which characterized activities at Long Beach, Huntington Beach and Santa Fe Springs when they were at their zenith.

While it is impossible to get a unity of expression to that effect, the opinion of reputable geologists appears to be that the profitable producing area of Torrance does not extend within the city limits, and that the limits of the Compton field probably stop at least a mile short of Compton. This, however, remains to be proved by drilling, but it is already quite a well established fact so far as Torrance is concerned.

The ever-present promoter appears to have been offended by the recent ruling of State Corporation Commissioner, Edwin M. Daugherty, who has ruled that he will issue permits for the sale of stock in the Torrance field only on the basis of $75,000 per drainage acre on the most likely leases.

Inasmuch as some of the biggest companies, which are equipped to pick their leases to the best advantage and do their drilling in the most economical manner, assert that it is costing them from $63,000 to $80,000 to complete their wells at Torrance, it doesn't look like good picking for the "percentage" promoter who, in this state, is allowed 20 per cent of the total issue for the sale of his stock.

The result is that very little stock promotion oil development is expected in either of these new fields, and the old and well established companies are going ahead with confidence that their plan to take the oil out as it is needed will not be turned topsy turvy by the dollar grabbing syndicate outfits.

Switching to Gold

Meanwhile the promoters—at least quite a number of them—are turning their eyes toward Goldtown, a new mining camp up on the Mohave desert, and are declaring that oil is dead and that gold is coming back. It looks like a return of the gold craze in California. Quite a number of mining stock syndicates are already under way here and more are expected.

As for the flush fields—nobody thinks they are dead, but everyone knows that they are declining. Edge water is present in all of them, and is particularly troublesome at Santa Fe Springs, the engineers admit, and the gas head is tapering off to a noticeable degree.

The best evidence of this is that new wells are failing to show gusher class. Long Beach and Santa Fe Springs remained in the gusher class up to about the first of August and then they began to break. During August the wells averaged 3000 to 4000 barrels apiece, and in September they are averaging nearer 2000 barrels.

The three big fields last week kicked in with 13 new wells but did not show up with a single surprise. Several big wells were reported, but the pipe line runs did not bear out the statements of the promoters. One promoter who has met with unusual success in syndicating wells here brought in a new well yesterday and the price units kept right on going down regardless of the publicity that was given the event.

From a high point of 110.000 barrels a day some weeks ago the Hunt'ngton Beach field was this week clipping off only 95,000 barrels per day, and a decline from this is expected next week. The Standard Oil Co. of California is going right ahead with its drilling program in this field, however, because it has considerable excel'ent undrilled area. About 45 new wells are expected in this field during the next 12 months.

Sixty per cent of the oil at Huntington Beach is now being produced by the Standard, the Amalgamated Oil Co., the Shell Co. and the Union Oil Co., of California.

The attention of dril'ers in the Torrance field was diverted a few days ago from the Torrance-Redondo boulevard area, where the Midway Norther well created such excitement when it came in some time ago, back to the Carson street district, when the U. S. Royalties Co. brought in its Vista High'ands No. 1. The well was at first rated as being as good as the Midway Norther, which set the high mark for the field at 1500 barrels a day, but after a day or two it speeded up until yesterday it picked up to a 3000 barrel flow.

The operators are now buffaloed. For a while they thought the big production was in the vicinity of the Midway Norther property. Now they suspect it of lurking near the Vista Highlands, three-quarters of a mile to the northeast.

The outlook is all the more complicated because the Peterson-Barker wildcat well, more than a mile and a ha'f farther east, is being prepared for production. Should it go over the 1000-barrel mark the dope would be all upset, and a field more than 5 mi'es long and 3 miles wide would be proved up, because the discovery well, at the west side of the field did 250 barrels at the start.

Operators are expecting Torrance and Compton to keep them busy during the coming year. The Union Oil Co., of California has two more test wells down a considerable distance in the Compton field. The Callender No. 3 is down 1100 feet and the Rosecrans No. 1 is at 2605 feet.

The Shell Co. of California is building a rig for an offset to Union's discovery well, and the U. S. Royalties Co. is erecting a rig at the corner of Harbor boulevard and Main street. These rigs are not over 15 miles from Broadway in Los Angeles.

According to the state oil and gas supervisor's office, 28 new wel's were started in California last week. The previous week saw 24 started. So far this year 1048 wells have been started. The abandonments last week numbered 14, against seven for the previous week.

California Daily Production

LOS ANGELES, Sept. 29.—Daily average production in California for the past week was 872,800 barrels, divided as follows:

	Sept. 29	Sept. 22
Santa Fe Springs	325,000	340,000
Long Beach	245,000	240,000
Huntington Beach	90,000	95,000
Torrance	7,500	6,000
Compton	1,300	1,250
Rest of state	204,000	203,000
	872,800	885,250

California Oil Receipts Show Falling Off

NEW YORK, Sept. 27.—Receipts of California oil (crude and refined oils) at Atlantic and Gulf Coast ports for the week ended Sept. 22 totaled 799,000 barrels, a daily average of 114,143 barrels, against 1,658,000 barrels, a daily average of 236,857 barrels for the week ended Sept. 15, according to the American Petroleum Institute:

California Oil Receipts at Atlantic and Gulf Ports
(Barrels of 42 gallons)

At Atlantic Coast Ports	Week Ended Sept. 22	Week Ended Sept. 15
Baltimore	70,000	393,000
New York	262,000	855,000
Philadelphia	172,000	70,000
Others	75,000	80,000
Total	579,000	1,398,000
Daily average	82,714	199,714
At Gulf Coast Ports		
New Orleans and Baton Rouge ..	220,000	260,000
Total Atlantic and Gulf Coast Ports	799,000	1,658,000
Daily average	31,429	37,143
Daily average	114,143	236,857

According to figures collected by the American Petroleum Institute, imports of petroleum (crude and refined oils) at the principal ports for the week ended September 22 totaled 1,441,000 barrels, a daily average of 205,857 barrels, compared with 1,577,000 barrels, a daily average of 225,285 barrels for the week ended Sept. 15.

Imports of Petroleum at U. S. Ports
(Barrels of 42 gallons)

At Atlantic Coast Ports	Week Ended Sept. 22	Week Ended Sept. 15
Baltimore	.....	(a) 190,000
Boston	70,000	119,000
New York	190,000	200,000
Philadelphia	168,000	101,000
Others	118,000	(a) 262,000
Total	546,000	872,000
Daily average	78,000	124,571
At Gulf Coast Ports		
Galveston district....	277,000	266,000
New Orleans and Baton Rouge....	504,000	190,000
Tampa	15,000	75,000
Port Arthur and Sabine district..	99,000	174,000
Total	895,000	705,000
Daily average	127,857	100,714
At All U. S. Ports		
Total	1,441,000	1,577,000
Daily average	205,857	225,285

(a) Revised.

Note: Figures are presented for the week ended Saturday morning so as to conform with period covered by the Institute report of estimates of daily average gross production. Figures are subject to revision each week. They are complete for all the principal ports where foreign mineral oil is imported.

Engineer Describes Oil Possibilities Of Sakhaline Island

ASIDE from the southern California oil fields, probably the only really great known oil field in the territories of the eastern ocean is that of the Dutch East Indies. The much advertised oil discoveries on the Alaskan peninsula have not yet reached a permanently productive stage although boring has been in progress for a number of years.

In view of the enormous expansion in the use of oil for fuel, it is natural that search for new oil fields in all parts of the world should be active. In the lands bordering the Pacific, this search has hardly commenced and new discoveries of importance are likely to be made at any time. The oil field of Sakhaline, described in the latter portion of this paper, has long been known and, considering its extent, may perhaps prove of importannce. Knowledge concerning it is scant, for which reason the writer has assembled and recorded the few facts that are known.

The island called Sakhaline by the Russians, after the Manchu fashion, and Karafuto by the Japanese, is probably the least known of the great islands outside the Polar regions. Its southern end is at about the latitude of Venice and its northern tip at that of Edinburgh; wherefore the common idea that this much debated strip of land lies somewhere near the Arctic Circle is quite erroneous.

On account of the double occupation of the island, there is much confusion as to its name; in this article the name Karafuto will be generally employed to indicate the southern portion belonging to Japan, and Sakhaline for the north portion belonging to Russia. For the spelling Sagalien or Saghalien there does not appear to be the slightest authority.

The island of Sakhaline was known to the Japanese in the early seventeenth century, and Russians from Bolsheretsk, in Kamchatka, appear to have visited it in 1650. Practically nothing is known of the origin of its inhabitants, the Ainus, who still occupy the island to the number of 13,000, according to Japanese statistics, and have remained in the same condition of primitive life for centuries.

It is recorded that in 1806-7 there were several Russian incursions about Aniwa Bay, at the south end of Karafuto, which were more or less feebly opposed by the Japanese of northern Hokkaido. An amusing account of an "army" sent by the Japanese to oppose a landing of the Russians from Kamchatka on the north coast of Hokkaido in 1806 is given in one of the early volumes of the Asiatic Society of Japan. The army consisted of 123 persons, most of whom were personal servants of the Daimyo in charge, and included only 36 fighting men.

After this the Russians and Japanese got along peaceably in regard to Sakhaline until 1852, when the numerous incursions of Russians on the west coast in the vicinity of the 50th parallel caused negotiations to be opened for the ceding of the entire island to Russia. These were not completed until 1875 when, in exchange for the Kurile Island lying between Hokkaido and Kamchatka, the whole island of Sakhaline passed to the control Russia. This treaty may be said to have been executed with true Asiatic moderation.

By the Treaty of Portsmouth, Sept. 5, 1905, Japan again obtained the part of Sakhaline south of the 50th parallel, roughly speaking the southern half. In 1920, as a result of the massacre of Japanese at Nikolaievk, Japan again occupied the northern half and is today making a port of the old town of Alexandrovsk, on the west coast, 70 miles north of the former boundary.

Topography

Sakhaline is 530 miles long and varies from 15 to 100 in width. In geographic position, as seen from the accompanying map, it is the northern terminus of the great Japanese archipelago; that is to say, it is the true orographic north continuation of the sedimentary formations of Honshiu and Hokkaido, while the volcanic chain departs at a wide angle to the northeast, represented by the Kurile Islandns and the Peninsula of Kamchatka. Recent volcanic rocks are represented in Sakhaline but sparsely, most of the rocks being sedimentary, of Cretaceous and Tertiary periods.

The island is centrally and longitudinally divided by a broad valley occupied by two rivers heading at a point near the center of the island; the Timee, 150 miles long, flows north and then east into the Sea of Okhotsk, while the Poronaya, of about the same length, flows south into Taraika or Patience Bay. Both of these rivers are navigable for small craft, and are deep in places, but the mouths are obstructed by sand bars. There are a great number of small rivers and creeks debouching into the sea on all sides of the island, affording facilities for "booming" timber, and as breeding grounds for great wealth of salmon and other fish.

The western range of mountains, which consists mainly of Cretaceous rocks south of the center of the island and of Tertiary rocks in the northern half, has its greatest altitude, 4600 feet near the center, and gradually flattens out into a plateau toward the north, with an elevation of 500 feet. The eastern range consists of Devonian and still other rocks forming peaks of 3000 feet near Patience Bay, at the north end of the Karafuto section, followed by predominating Tertiary rocks to the north end where it terminates in bold headlands at Cape Elizabeth and Cape Mary. Considerable masses of basalt and other volcanic rocks occur on both the east and west coasts throughout the length of the island.

Oil Resources

Indications of petroleum along the east coast of Sakhaline Island have long been recognized. In 1907, at Vladivostok, the writer met Captain Zotoff, a Russian naval officer then well advanced in years, who had since 1889, held oil claims on Oha creek, near Urkt Bay, at the north end of the petroleum field. About 75 miles south of this point at Kleye Inlet, 52° 20′ north latitude, more important indications were later found, between Nutovo and Evay creeks, 10 miles from the coast, and for a length of about 15 miles. In 1903, an English geologist, Norman Bott, is said to have examined this field in a preliminary way. Much investigation of a geological character has been conducted by Russian geologists, among whom may be men-

Russian Territory Sinclair Will Drill

Harry F. Sinclair, upon his recent return from a three-months trip through Europe which included a conference with Soviet authorities of Russia, said Sakhaline Island is "one of the oil plums of the world." Sinclair plans to drill the northern half of this island, which is off the coast of Siberia and the area of petroleum exploration is some 800 miles northeast of Vladivostok. The southern half of the island belongs to Japan and this country also occupies the northern half or Sinclair's concession as surety against the payment of indemnities alleged by the Japanese to be due from Russia because of the massacre of Japanese subjects.

The accompanying article describing the island and its oil resources is part of a much longer article by Chester Wells Purington, consulting mining engineer and geologist, Yokohama, Japan, which has just last week appeared in Mining and Metallurgy, the official publication of the American Institute of Mining and Metallurgical Engineers. The title of the paper as it appeared was "The Coal and Oil Resources of Sakhaline Island," and that part pertaining to oil is herewith reprinted, with full acknowledgments to the author and to Mining and Metallurgy.—Editor.

tioned Annert, Batsevich, Polevoi, Tikhonovich and Kristofovich. The probable north and south limits of the oil-bearing zone have been defined, but beyond this little is known, as deep drilling was not undertaken prior to the war. In the London "Mining Journal" Apr. 15, 1911, A. F. Brown summarizes the history of oil exploration in Sakhaline down to that time.

In 1909, Mr. Brown drilled to 405 feet on Oha creek. The only drill hole described was started in December and apparently not completed until June of the next year. A detailed log of the well is given. The hole went through oil sand and bituminous clay and sand down to 200 feet, after which it penetrated argillite rock with subordinate sand layers. The oil flow, which rose slowly in the hole after 300 feet had been passed, appeared at surface, but it is not stated whether it continued long. The hole had to be abandoned at 405 feet owing to the inefficiency of the rig.

Although four different companies were interested in Sakhaline oil boring between 1890 and 1911, and drill rigs were sent out from England under the auspices of well known engineers* no subsequent work appears to have been done until about five years ago when an important Japanese company started drilling on Oha and other northern tracts. Beyond the fact that the drill rigs were wrecked by "Partizans" in 1920, and have since been restored, nothing is known about the results of the recent drilling.

Strong Oil Seepages

The oil seepages occur in the tundra belt fronting the Tertiary ranges along the entire east coast of Russian Sakhaline, within seven to 10 miles from shore and for a distance of over 200 miles. The most prominent are at Kleye Entrance, about 120 miles from the northern tip of the island.

According to Paul Dvorkovitz, in the "Petroleum Review," Oct. 8, 1910, the deposits, as seen at the surface, "consist of extensive peaty swamps, strongly impregnated with petroleum. The impregnation is of such a character that, in many instances, the pools of water that accumulate in depressions in the swamps, are accompanied by thin or thick layers of petroleum."

For example, in the so-called "pitch lakes" of Nutovo the black crusts, although in places hard and strong enough to carry the weight of five or six men, even in moderately warm weather (70 to 80° F.) are generally only an inch or two in thickness. They are easily dug through and then expose a blackish magma of peaty fibre and soil reeking with petroleum ranging from thick black with greenish fluorescence to pale amber-colored limpid liquid. These pitch lakes present a similar appearance in whichever district they occur. They are of irregular shape, some being long and narrow. They generally have a cracked surface, being broken up by reticulated series of fissures into small blocks, roughly polygonal in shape and having slightly convex surfaces and measuring from four to nine inches in area. On most of these pitch lakes there are accumulations of water in pools and also tricklets of oil which ooze out from the peaty masses.

Some of the pitch lakes are dry and crumbling, but the majority are swampy and intersected with streams, which flow into the pitch lakes or other streams, and in turn find their way into the river draining the valley.

These petroliferous lands vary in extent and form, and occupy areas in valleys bounded by hills and cliffs of varying heights, some of which are quite steep. The valleys have level stretches but are by no means uniformly level. In fact, many of them hillocks, hammocks and small ridges break up the surface in quite an irregular fashion whilst the swampy areas are more or less interspersed with forest land and thick undergrowth.

Strangely enough, altnough in the oil fields there are plenty of hills, and even cliffs, very little has so far been disclosed as to the geological structure of these high lands. Yet there are a few exposures which show that they consist chiefly of sandstones, varying from loose sand to quartzitic rocks, as well as of conglomerate and limestone; some of these deposits lie horizontally while others are tilted up at all sorts of angles.

Brown, in the paper above cited, describing the big lake at Oha Creek, 75 miles north of Nutovo, says it is over 1000 feet long by 400 feet wide and from two to six feet deep, containing over 20,000 tons of asphalt-like substances of such toughness that it took two Russian workmen two and one-half days to sink a narrow pit down to the clay bottom. The paraffin appeared comparatively free from foreign substances.

Brown's general description of the oil field is as follows:

"From 15 to 30 miles east of the central range of the island and a less distance from the coast line, a low range of hills, consisting of Tertiary shales, clays and sandstones, parallels the main range in an irregular and disconnected chain; and here for a length of about 200 miles are found the paraffin lakes and oil springs which have recently attracted so much attention. Nearly all the more prominent groups of oil springs and paraffin lakes occur in localities where erosion has carved out valleys through these coast hills and so cut into the upper layers of the oil-bearing sands. Of such groups, 13 are now known.

"The springs (of which the Oha creek section alone contains a couple of hundred) range in size from a few drops a minute to a tiny stream the size of a man's finger. The paraffin, which is simply crude oil oxidzed through the action of air through ages, is found in all stages of density, from the consistency of tar up to hard smooth-surfaced mass, resembling an asphalt floor.

"Judging by a few shallow drill holes put down, it seems that sand and sandstone dominate in the central part of the field, and clay and shale in the northern and southern divisions."

A description of one of the Oha creek deposits is also given by Batzevich who states that oil from a shallow pit, which discharged about 10 gallons per day, was tested with the following results: Sp. gr. at 70.5° C., 0.944 (about 19 Be.) distillate at 70.5° C., 1.2 per cent; at 150-270° 17.7 per cent. Dvorkovich gives, for the Nutovo product, Sp. gr., 0.911; flash point, 214° F. distillate at 150-220° C., 4 per cent; at 200 to 300°, 68 per cent.

None of the oil so far tested shows the presence of benzine or illuminating oil, but it is considered possible that deep boring may establish the presence of oil of lighter gravity.

Seemingly Confined to North

The most southerly indication of petroleum on the east coast of Sakhaline is at a point slightly south of the 51st parallel, and the most northerly outcrop is about 40 miles south of the north point of the island. A recent and thorough Japanese geological map of the island gives the situation of about 30 different occurrences altogether. No oil is indicated on this map as occurring in the part of the island south of the 50th parallel, in other words the Karafuto portion. The most important indications are undoubtedly within a few miles north and south of Kleye Inlet, also called Chaivo Bay. The petroleum bogs lie along seven parallel creeks, the Evay on the south and the Nutovo on the north, between latitudes 52° 20′ and 52° 35′, and at a distance of eight to 12 miles inland from the reefs which fringe the seacoast.

Second to these indications are those of the Oha creek region, especially in the valley called Allas, where the entire flat between the surrounding hills a mile long by 2000 feet wide, is covered with petroleum springs.

The east coast of Sakhaline is lacking in harbors or good anchorages although it is considered that dredging may assist in making a harbor at Kleye Inlet to admit vessels of moderate draft. The east coast is badly infested by fog during the open season and floating ice impedes navigation in the winter. It is likely that, in case of commercial development of the oil resources, it would be preferable to pipe the oil across the island to the west coast, where navigation and loading conditions, although by no means ideal, are considerably more practicable.

As regards the possible extension of the oil zone beyond the limits of Russian Sakhaline, it has been remarked no oil is indicated in the Karafuto portion on Japanese maps, and if oil has been found, it would appear to be of no commercial importance. By far the bulk of the Japanese oil production comes from the Eocene beds of Tertiary horizon, about Nagaoka, in the west central part of the main island of Japan. Although this formation is more or less continuous through northern Hondo (main island), the island of Hokkaido, and very prominent in Karafuto, it does not appear to have afforded important petroleum indications until its appearance in north Sakhaline where it forms the most of the oil deposits.

There are important petroleum indications in the coastal zone of the Siberian mainland, but a description of these is not pertinent to the present article.

Conclusions

From the above brief summary of the island of Sakhaline, it is apparent that its mineral resources may prove of considerable importance in the next few decades. It has been, so to speak, a bone of contention between Russians and Japanese for over a century. Neither of these nations was greatly interested in minerals; but rather in fish and to a certain extent, in timber.

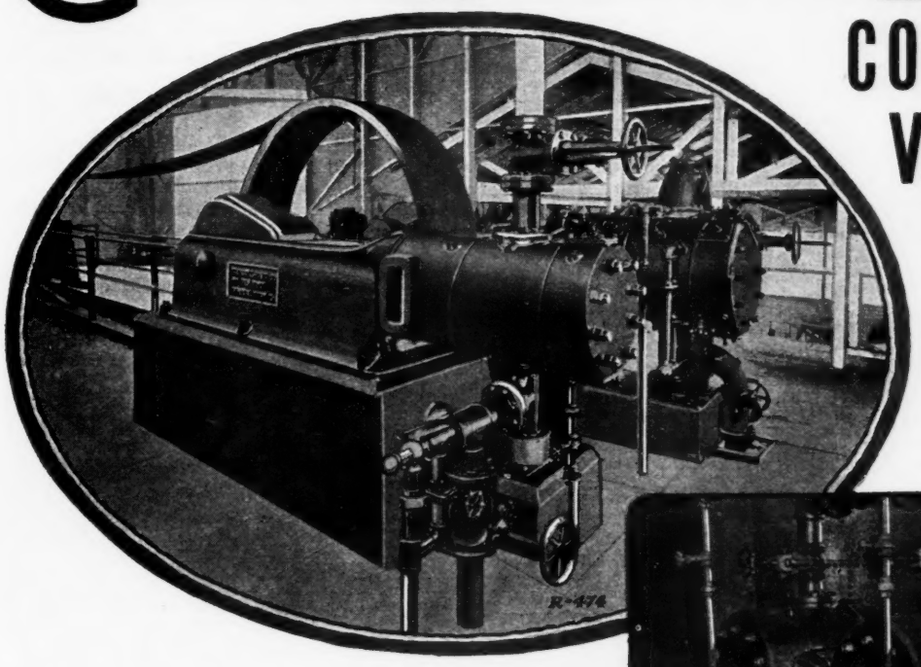
Today conditions have changed. The lethargy of both nations, which has been the protector, so to speak, of Sakhaline is rapidly being shaken off. Nations further afield are searching for fuel reserves. Fog-bound and ice-bound coasts present few obstacles which modern enterprise and invention cannot overcome. It is consequently not at all likely that the isolated island of Sakhaline will continue to preserve for many years longer the integrity of those natural resources which the complicated needs of civilization so urgently require.

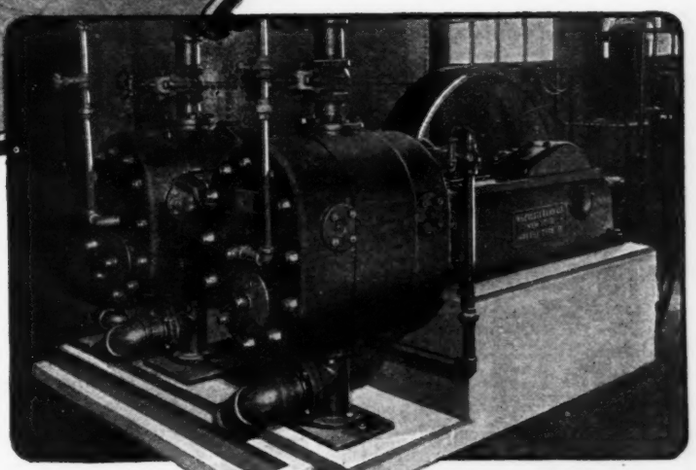
CASPER, Sept. 29.—Salt Creek's "splendid isolation" was ended on Sept. 25 when the Wyoming North & South Railway ran its first train over the new line from Illco to the south end of the field.

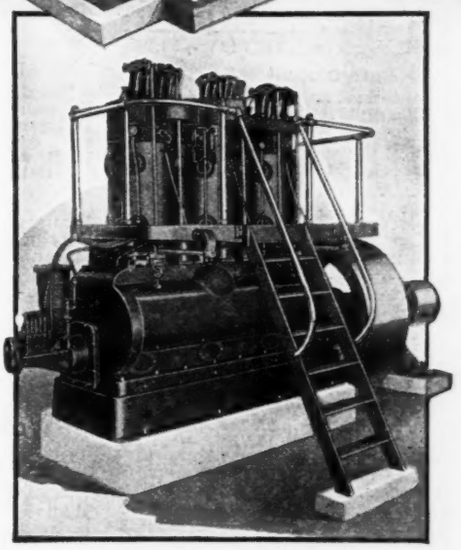
*The second Sakhaline Oil Syndicate, Ltd., of London, recorded some 300 oil claims in the vicinity of Chai-vo Bay, in 1909-10.

GASOLINE EXTRACTION EQUIPMENT

COMPRESSORS
VACUUM PUMPS
GAS ENGINES







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New High Record But Gain Smaller Than For Many Months

WASHINGTON, Sept. 29

A NEW high record for production in the United States is reported for August by the United States Geological Survey which says that a daily average of 2,119,871 barrels was maintained.

The Survey says, however, that the smallest gain over the preceding month since September, 1922, was recorded in August when the gain over July was a little more than 15,000 barrels daily.

The gain in stocks east of California was reported at only 1,658,000 barrels but owing to a reclassification where a Mid-Continent company removed 4,029,000 barrels from the pipe line and tank farm classification and began calling it refinery storage, the actual gain outside of California was thus 5,687,000 barrels. The gain for the entire country in domestic crude was 8,456,000 barrels, which is a lesser gain in stocks than in July, when the gain for the entire country was 9,337,000 barrels. Of this, the gain east of California was 6,675,000 barrels.

Indicated deliveries to consumers reached the new high record of 2,027,000 barrels, the first month they have been above two million barrels daily.

Daily Average Domestic Production Barrels, 42 Gallons

	August	Change Over July
California	852,903	+37,997
Mid-Continent		
Oklahoma	417,097	—56,290
Kansas	66,032	— 8,258
Total Mid-Continent	483,129	—64,548
Southwestern		
No. and Cent. Texas	285,452	+23,936
No. Louisiana	60,871	+ 2,129
Arkansas	100,419	+ 8,193
Total Southwestern	346,742	+34,258
Gulf Coastal		
Texas Coastal	84,032	+ 1,613
Louisiana Coastal	6,161	0
Total Coastal	90,193	+ 1,613
Rocky Mountain		
Wyoming	126,474	914
Montana	8,387	290
Colorado	171	23
Total Rocky Mountain	135,032	1,227
Central States		
Illinois	24,097	65
Indiana	3,097	194
Ohio (Lima)	6,065	— 32
Total Central States	33,259	227
Appalachian		
Kentucky	23,775	+ 4,010
Pennsylvania	19,774	— 97
West Virginia	18,097	+ 613
Ohio (except Lima)	13,548	0
New York	3,387	— 193
Tennessee	32	+ 22
Total Appalachian	78,613	+ 4,355
Grand Total	2,119,871	+15,129

Indicated Daily Consumption Barrels, 42 Gallons

(Deliveries to Consumers)

Domestic Crude	August	Change Over July
Appalachian	74,323	— 290
Lima-Indiana	5,968	— 516
Ill. and S. W. Ind.	19,742	— 1,548
Mid-Continent and Southwestern	794,935	+18,632
Gulf Coastal	77,645	—14,645
Rocky Mountain	99,161	— 3,775
California	763,581	+34,549
Total Domestic	1,835,355	+31,807
Imported Crude	240,742	+21,307
Total Consumed	2,076,097	+53,114
Exported Crude	48,742	— 225
Total Consumed in U. S. and Territories	2,027,355	
Amount by which August consumption exceeded July, daily average		52,889

Stocks of Petroleum Held in the United States

	August 31	Change Over July 31
Domestic (water and b. s. deducted)		
Appalachian (N. Y., Pa., W. Va., E. and Cent. Ohio)	6,262,000	+ 97,000
Kentucky	3,041,000	+ 36,000
Lima-Indiana	845,000	+ 29,000
Ill. and S. W. Ind.	11,072,000	+ 205,000
Mid-Continent (Okla., Kans., No. and Cent. Tex)	153,577,000	+ 266,000
No. Louisiana and Arkansas	27,227,000	— 112,000
Gulf Coast	23,942,000	+ 389,000
Rocky Mountain	9,906,000	+1,112,000
Total East of California	235,872,000	+2,022,000
California (Gross)	61,170,000	+2,769,000
Imported Crude		
Atlantic Coast	72,000	— 104,000
Gulf Coast	819,000	+ 192,000
Total Imported	891,000	+ 88,000
Grand Total Crude Stocks except at refineries	297,933,000	+4,879,000

Imports and Exports of Crude Petroleum (Daily Averages)

	August	Change Over July
Imports	244,516	+22,097
Exports Domestic Crude to Canada	23,677	+ 4,870
To other countries	25,065	— 5,096
Foreign Crude	935	0
Total Exports	49,677	— 226
Excess Imports over Exports	194,839	+22,323

U. S. Survey's Report on Shipments of California Crude to Eastern and Gulf Ports

January	908,943
February	1,978,000
March	3,334,000
April	4,380,000
May	5,075,245
June	4,542,199
July	5,524,000
August	5,525,000
Total, January-August	31,261,330

Well At Simpson Ridge

CASPER, Sept. 29.—Producers & Refiners Corp. completed a small well at shallow depth on Simpson Ridge last week. The well found oil at 647 feet and oil rose 300 feet in the hole. Location is in 20-21-80 and is near another well which found production some months ago in the same horizon, later going to water. The second well will be produced for fuel for other tests on the same structure.

Gravity Classification Of Oklahoma Oil

TULSA, Sept. 27.—Based upon the estimated daily production of Oklahoma for the week ended Sept. 22, the classification of gravities under the schedule now in effect is as follows:

Classification of Oklahoma fields under new gravity schedule of Prairie Oil & Gas Co.

Below 33 Gravity—90 cents

Field	Production
Allen	390
Bird Creek	5,000
Coweta	115
Depew	12,500
Kelleyville	3,000
Continental	26,000
Slick	5,900
Osage County	9,000
Washington-Nowata	6,000
Fox	2,450
Healdton	16,000
Loco	3,000
Robberson	5,000
Walters	1,240
Total	95,595

33 to 39.9—$1.30

Field	Production
Bald Hill	4,800
Bixby	650
Boynton	1,060
Broken Arrow	290
Burbank	101,294
Cleveland	5,198
Jennings	2,860
Cushing	26,000
Glenn Pool	9,000
Beggs District	12,890
Henryetta	1,280
Kingwood	1,780
Lyons	7,750
Mannford	260
Morris	940
Mounds	730
Muskogee	300
Okemah	1,200
Osage County	18,000
Stone Bluff	450
Tiger Flats	5,920
Wetumka	325
Yale	4,980
Ingalls	1,200
Cement	2,120
Comanche	900
Duncan	8,904
Hewitt	21,051
Sayre	1,500
Brock	535
Graham	2,750
Kilgore	290
Total	247,207

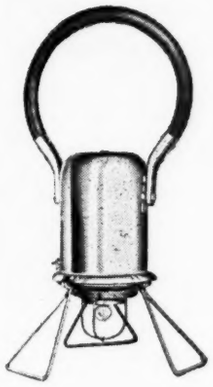
40 and Over—$1.75

Field	Production
Billings	700
Blackwell	2,300
Garber	6,200
Mervine-Newkirk	725
Ponca City	950
Tonkawa	58,610
Wewoka	10,000
Deer Creek	150
Total	79,635
Grand Total	422,437

Gulf Coastal, Texas Completions Week Ending Sept. 29, 1922

Company	Lease—Well	Field	Depth	Prod.
Gulf Production Co	Harrison Fee 3	Hull	2521	75
Brownie Babbette Oil Co	McLean 5	Orange	4130	900
Orange Petroleum Co	Winfree 8	Orange	3590	700
Gulf Production Co	Kishi Lang 5	Orange	3300	Aband.
Sun Oil Co	Wright 4	Goose Creek	2490	50
Luling, Caldwell County, Completions				
Magnolia Petroleum Co	Nathan Byrd 1	Luling	2093	500
United North & South Oil Co	W. M. Mercer 2	Luling	2160	500
United North & South Oil Co	F. Mercer 1	Luling	2175	300
United North & South Oil Co	Trammel 1	Luling	2112	70

An Open Flame Might Start a Big Fire TONIGHT— Play Safe



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Among The Producers

TULSA, Sept. 28.—William B. Sutton, assistant superintendent of the land department of the Prairie Oil & Gas Co., has announced that the Wichita Falls and Eastland, Texas, offices of the Prairie will be consolidated at the latter place. E. G. Schreck, who has been in charge of the Wichita Falls office, will be in charge of the consolidated office in Eastland. In this, he succeeds Mr. Sutton, who was recently transferred to Tulsa to take the position left vacant by the departure of Herbert A. Meyer.

* * *

TULSA, Sept. 29.—Fred R. Parks, of the scouting department of Cosden Oil & Gas Co., has been transferred to Holdenville, and will scout the Okemah-Wewoka-Holdenville district for the company. Fred Hill, who has been the company's scout in this district for more than a year, will take Mr. Parks' place in the Tulsa office.

* * *

TULSA, Sept. 28.—D. E. Kervin, well known to the fraternity, is back in town after having spent the summer in Colorado with his family. Gene until recently was Kansas representative for the Waite Phillips Co., but is no longer connected with that organization. He also used to be with the land department of The Texas Co., as scout and lease man.

Abandons Kansas Test

DENVER, Sept. 29.—Marine Oil Co., has abandoned test in Ellsworth county, Kan., located in 21-15-6W, near Carneire. Total depth reached was 4007 feet. This well was started by Ed Good, of Rawlins and several associates operating as the Arcola Oil & Gas Trust. Marine took over the test in January of this year and drilled to final depth.

CASPER, Sept. 29.—Pipe line runs in the Rocky Mountain region for the week ended Sept. 29 showed an increase of 7815 barrels in the daily average when compared with the record of the preceding week. Comparative average runs for the two weeks in the various fields follow:

Fields	Sept. 29	Sept. 22
Salt Creek	130,000	123,000
Teapot	4,700	4,430
Big Muddy	4,250	3,645
Lance Creek	455	450
Pilot Butte	85	80
Lander	400	475
Lost Soldier ...	5,300	5,700
Rock River	4,000	3,850
Grass Creek	4,885	4,875
Hami'ton Dome	510	340
Elk Basin	1,925	2,025
Notches Dome..	400	445
Greybull, etc. ..	215	220
Osage	1,090	1,185
Ferris	200	210
Cat Creek	5,545	5,760
Kevin-Sunburst..	3,660	2,400
Miscellaneous ..	600	625
Total	168,220	160,405

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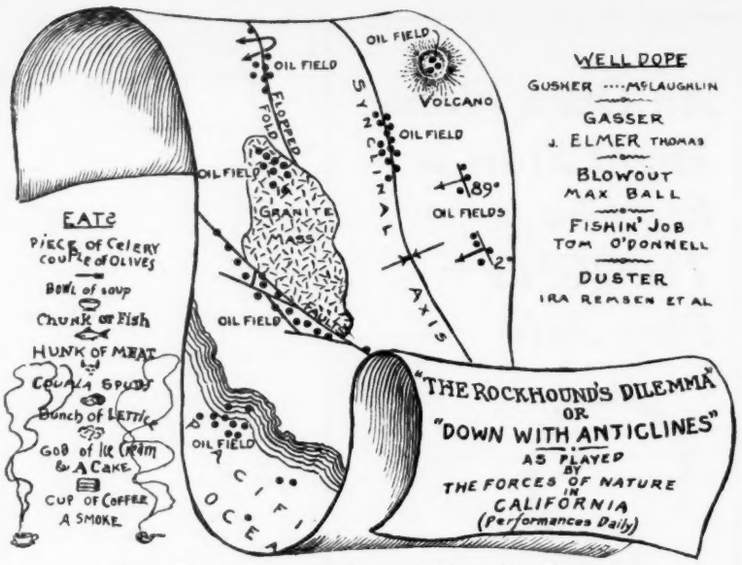
Off Structure At Convention Of Geologists

By Paul Wagner



From the program of the A. A. P. G., Los Angeles

WILLIAM E. WRATHER, past president of the American Association of Petroleum Geologists and one of the members recognized to have been responsible for much of its success was unable to attend the mid-year meeting in Los Angeles. President Max W. Ball appointed a committee, after unanimous vote of the association, to telegraph Mr. Wrather a message of greetings and make known how he had been missed from the gathering. Mr. Wrather's young son was killed by lightning last spring and he has not been in the best of health himself, Mr. Ball explained.

* * *

W. A. J. M. van Waterschoot van der Gracht, for 15 years head of the Geological Survey of Holland, later in executive charge of the Royal Dutch-Shell interests in America and more recently a director of the Marland Oil Co. was unable to attend the meeting but his paper on "The Economic Situation in the Oil Industry" was read by President Max W. Ball of the association, Frank W. DeWolf of the Humphreys Oil Co. occupying the chair while it was presented. Dr. van der Gracht's paper referred to reckless dissipation of American petroleum resources and eventual import requirements and, in passing gave the result of his investigations into the Venezuelan situation. He indicated Venezuela will produce vast quantities of low grade oil but under conditions that will make higher prices necessary before it can be bought profitably to the United States. He also referred to a 25.2 per cent increase in gasoline consumption the first six months of 1923 as against an average increase previously of about 17 per cent.

* * *

Richard A. Conkling, consulting geologist of Oklahoma City, formerly with the Roxana Petroleum Corp., (Royal Dutch-Shell) gave "A study of the Present Mid-Continent Oil Situation," which was read by Carl H. Beal of San Francisco in the author's absence. Mr. Conkling infers the new Wewoka development has considerable possibilities and may cover a considerable area. Most known fields in Oklahoma he described as on their down grade from production peaks, but fresh finds through use of coring operations were regarded as probable.

* * *

Alexander Duessen, consulting geologist of Houston, took occasion in discussion of one of the papers before the association to ask whether it will be economically possible to lift Los Angeles basin oil in pumping practice when wells cease flowing at the 5000-foot level. Irving Augur of Los Angeles answered the question by saying that the chances are the fluid level will stand within 1000 to 1500 feet of the top of the hole when such a well stops and that several years then will be required to exhaust its production possibilities.

* * *

C. F. Tolman, professor of geology at Stanford University, gave learned discussion of the complexities of California structures, but at one stage branched off into a humorous vein to say that type fossils studied by the scientist of the future in dealing with the present age would include beer bottles in the deserts, auto tires and finally "lizzies."

* * *

A number of the Mid-Continent contingent didn't reach Los Angeles until the second day. Floods in the Grand Canyon held them up and when the train attempted a detour another flood was encountered behind it. Finally the contingent got through; and something of their experience was indicated at the Friday night banquet when they sang to the tune of that now fossiliferous ode about the lack of bananas:

Yes, we see no Grand Canyon,
We see no Grand Canyon today.
See sage-brush and lava and 'dobe and cactus,
And all kinds of mud and clay.
We see a new shower has shown up;
The bridges all have blown up.
But yes, we see no Grand Canyon,
We see no Grand Canyon today.

Chorus—Tune, "In the Shade of the Old Apple Tree."

On the switch of the old Santa Fe,
We are held up by washouts today,
On the morrow we fear
We will see you right here,
On the switch of the old Santa Fe.

Yes, we see no Pacific,
We see no Pacific today,
See DeWolf and Harrisons and Thomas and Rollin
And Gardners and Jones and Kay.
See Harnsbergers and Thornberg,
Clark and Herold in "Slow-burg,"
But yes, we see no Pacific,
We see no Pacific today.

* * *

R. R. Templeton, in presenting a paper by himself and C. R. McCollom of the Union Oil Co., of California on the Santa Fe Springs field, disclosed that in one regard there wasn't any doubt about the time when the peak was reached. That was the drilling peak in this field. It was reached June 7, last, with 249 wells. He credited Santa Fe Springs with 1500 acres of productive ground, consisting of roundly 100 separate leases.

* * *

J. B. Case, deputy supervisor of the California State Mining Bureau petroleum and gas division, Los Angeles, discussed the primary value of core-barrel sampling. He stressed two points as being especially important, (1) to know that the "shoe" is in an impervious body when landed; and (2) the taking of type samples of water found in wells against future need for use in determining by analyses whether encroachments are of one character or another, i.e., such as intermediate, edge or bottom water.

* * *

G. C. Gester, chief geologist of the foreign department, Standard Oil Co. (California) exhibited a chart in connection with his paper on "Observations Relating to the Origin and Accumulation of Oil in California," which described the source rocks as 71.8 per cent of Miocene age; 4.3 per cent Oligocene, 23.7 per cent Eocene and 2.2 per cent Cretaceous. Generally, he said, the reservoir rocks are near-shore deposits; they are characteristically thick and predominantly of sandy character.

* * *

E. D. (Dan) Nolan, chief geologist of the General Petroleum Corp., spent one day at the association meetings but was unable to deliver his paper "The Alaskan Oil Fields" Saturday because of being in a hospital. Although not seriously hurt, he was injured in an automobile accident.

* * *

Ralph Arnold discussed "Two Decades in Petroleum Geology," covering development of the science from practically the beginning of the present century to date. He referred especially to the relation of diatoms to the presence of oil in California and referred to work of George H. Eldridge and Robert Anderson for the United States Geological Survey, in which he collaborated.

* * *

Dr. I. C. White, state geologist of West Virginia and the "father" of the anticlinal theory of oil accumulations, visited in the home of Edward L. Doheny, sr., chairman of the board of the Pan American Petroleum & Transport Co., while in Los Angeles.

* * *

John R. Suman, manager of the Rio Bravo Oil Co. (Southern Pacific) at Houston, and general superintendent in Texas of the Associated Oil Co., visited his brother George O. Suman also identified with the Associated while in California. Wallace E. Pratt, chief ge-

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ologist of the Humble Oil & Refining Co., Houston, visited his mother in Fresno before returning home. A. S. Henley, geologist and land man of the Houston Oil Co. of Texas, had been spending a month in California, where Mrs. Henley and their two children had been previously visiting. They returned to their Houston home after the meeting.

* * *

Arthur Knapp of Philadelphia, who charts economic trends for the United Gas Improvement Co., went to San Francisco from Los Angeles, routing himself home via Casper, Denver and Tulsa.

* * *

R. P. McLaughlin, general chairman of the Los Angeles committee, presided at the banquet, the after dinner talks including an impromptu discussion by President Tom O'Donnell of the American Petroleum Institute. Mr. McLaughlin took a few good-humored digs at his friend because of Mr. O'Donnell's attitude toward geologists and Mr. O'Donnell told a story of his life with slants on how it might have been different had he known something more about the profession. Mr. McLaughlin, when thanked by the association for his part in making the Los Angeles meeting the successs that it was unqualifiedly acclaimed, generously passed it on to the committees.

California Supervisor Sets Up Own Office

SAN FRANCISCO, Sept. 27.—R. E. Collom has resigned from the position of state oil and gas supervisor, effective Oct. 1, 1923. With the exception of an interval of one year and a half as petroleum technologist for the U. S. Bureau of Mines, Collom has been identified with the work of the Department of Petroleum and Gas in various capacities since 1915—the year of its inception. He has been state oil and gas supervisor since January, 1921, and during that time has seen the oil production of the state increase from 325,000 to 870,000 barrels daily due to the intensive town-lot drilling of the gusher fields of the Los Angeles Basin. He leaves the state service to engage in the work of consulting petroleum engineer with headquarters in San Francisco.

Failure In New Mexico

DENVER, Sept. 29.—Midwest Refining Co. has drilled a failure on the Chavez Grant, Miguel Creek, northwest New Mexico. This test is on an unsurveyed grant about 100 miles south of the Midwest's producing wells in San Juan county and is in McKinley county. The test developed water at 2154 feet and casing is now being pulled for abandonment.

CASPER, Sept. 29.—Supervisor M. J. Foley, of the Salt Creek Conservation Committee, has notified producers that the restrictions against shooting wells in Salt Creek have been lifted and that there is no longer a limit by pipe lines on connecting with wells that have been shot. The rule heretofore has been that only wells making less than 100 barrels initial might be shot.

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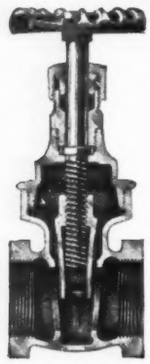

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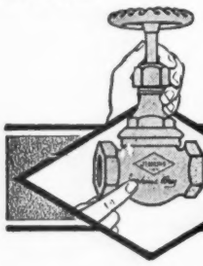

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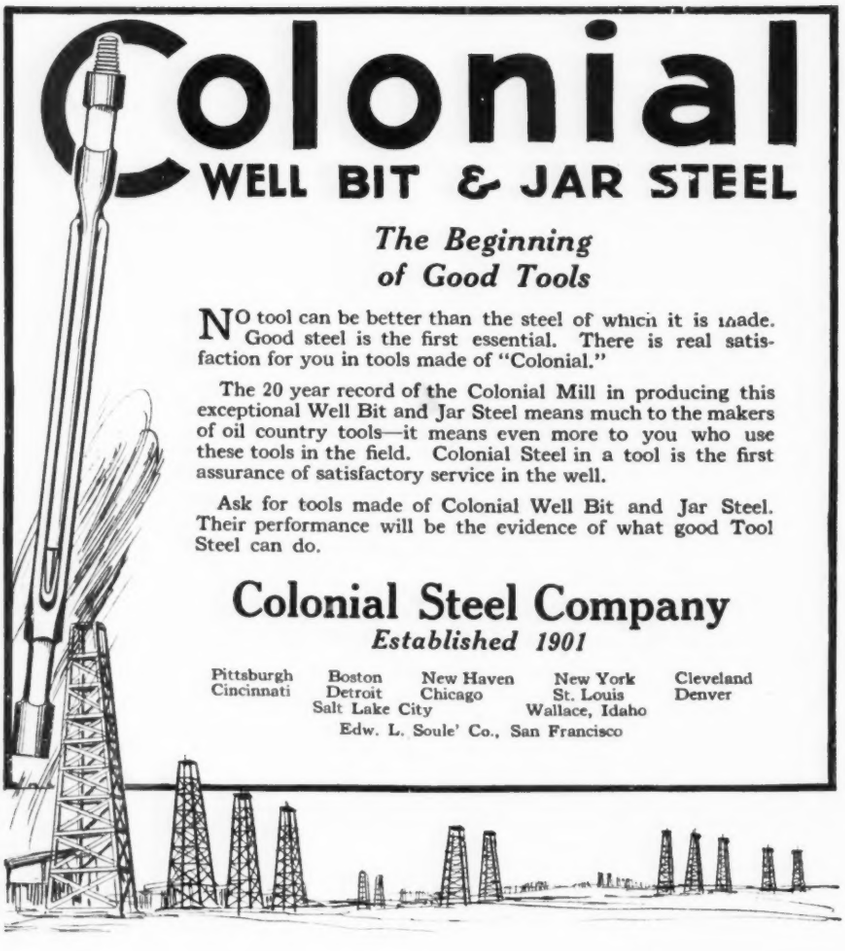

Fort Norman Oil Field Is Now Deserted

TORONTO, CAN., Sept. 29.—This winter, for the first time since 1919, the Fort Norman oil field, located about 100 miles from the Arctic Circle, will be deserted. The men who have been working there the past season, some 20 odd, have all come out and whether anything further will be done has not been revealed by the Imperial Oil, Ltd., which brought in the one oil well of the region.

Regarding the Imperial's operations in this region, the following information has been given out:

"After the completion of the discovery well three new locations were made, the first (D. location) on Bear Island, down the dip from the discovery well and one-half way across the river; the second (C Camp) further down the dip on the opposite side of the river and the third at Blue Fish Creek, near Fort Norman. After drilling to a depth of 1700 feet at C Camp, trouble was encountered with a crooked hole, the rig was skidded and a new start made.

"At the close of this season's work, the discovery well had been deepened to 951 feet and was capable of producing between 60 to 70 barrels.

"At D location a depth of 2080 feet was reached at which depth drilling was in the Beavertail limestone. There was a showing of oil at 1948 feet and a further indication of oil and gas at 1975 feet below which depth small quantities of salt water were encountered. At C location drilling was carried to a depth of 3057 feet in lime and no favorable showings were encountered.

"At Blue Fish Creek the well had reached 495 feet at the close of last season and owing to the lack of crews no further work was done this year."

Hogback Dome Well Is Big Producer

DENVER, Sept. 29.—Interest is added to the sale on Oct. 15 of Navajo lands in northwestern New Mexico by the performance of the No. 2 well of the Midwest Refining Co. on Hogback Dome, San Juan county. When deepened about a week ago it responded with a flow of 1260 barrels in the first 24-hour test.

This well came in in August for production of 350 to 400 barrels. It was 890 feet deep. On Sept. 22 it was drilled down five feet more and made 625 barrels in 12 hours and two days later made the large flow. The second 24 hours it made 1175 barrels.

The No. 1 well, which was the discovery of the field, is in the southeast of the southwest of 19-29-16 and No. 2 is in the same quarter section and is a quarter of a mile north and east from No. 1. The latter well found production at 779 feet last fall and showed for 325 barrels with some water. Not long ago drilling was resumed to test lower sands. At 885 feet a white sand was found which continued to 903 and carried water. Shale was found under this sand and the operators are now underreaming to set casing and shut off water.

Three-quarters of a mile east of the discovery and in Sec. 20, the No. 3 well was a failure.

Says Geologists' Association Is Stabilizing Influence

Staff Special

LOS ANGELES, Sept. 27

IN WELCOMING the American Association of Petroleum Geologists to Los Angeles for its mid-year session, which began Sept. 20, Vice President A. C. McLaughlin of the Associated Oil Co. drew a parallel between the aims of that organization and the aims of the California Chamber of Mines and Oil, which he represented on the program.

These aims are, or should be, he stated, to place the conduct of the petroleum industry upon a higher ethical plane and to stabilize that industry.

"You have chosen a most opportune time to visit Southern California," he said, "as you will have an opportunity of seeing the results upon the industry of the too efficient work of some of your members. Today, I think it is safe to say that the California production, in a large measure, dominates the oil markets of the world, a condition which has been brought about by the efficiency of California geologists and the super-efficiency of California real estate dealers."

Mr. McLaughlin harked back to the time when all phases of the oil industry were controlled by rule of thumb methods and when it was considered bad form for practical oil men to consult scientists in any phase of their business.

"As we all know," he said, "this condition has been greatly changed in the last 15 years; so that today there is scarcely a large oil company in the world which does not have in its organization a trained staff of geologists who are consulted upon all occasions.

"This has come about partly through the World War, during which time the American public came to realize, in a measure, the value of scientific methods of work, and partly to the ability of the geological profession to convince the industry of its value. It is indeed to the lasting credit and honor of the profession that this condition has been brought about. Some of us, even now, as so-called 'practical' oil men, show a reluctance to consult freely scientifically trained men, or to admit that the geologist is a necessary and integral part of our organization. I feel, however, that the 'proof of the pudding is in the eating' and that the very fact that every large organization maintains a trained geological staff and that no considerable wildcat program is undertaken without their advice, is the real answer to the question.

Misconceptions Among Executives

"There still exist many misconceptions among executives as to the real functions of the geologist in the oil industry and it is because of these misconceptions that the profession has, in a degree, suffered criticism which it did not deserve.

"It is generally supposed that a geologist should be able, with certainty, to predict the exact spot where commercial deposits of petroleum may be found and when he fails to give such positive and definite predictions, the confidence of the executive is shaken in the whole science of geology. It is often not realized that the most important function of the geologist is to advise us as to the places where we can not successfully prospect for oil and thus, by a process of elimination, save us many costly mistakes.

"Although the geologist has demonstrated his value to the oil industry, it has been an up-hill fight for him to do so. This difficulty has largely grown out of the fact that there has always been on the fringe of the profession, a group of individuals, beginning with the so-called 'Practical' geologists and ending with down right fakirs, who have been able, through loud talk and many promises, to impose their views upon the industry and, by their mistakes, discredit the legitimate geologist.

"I am reminded of a story told of Peter Leslie, one time state geologist of Pennsylvania, who was a very wise man in his day. One of his friends asked him what is the difference between the so-called 'theoretical' geologist and the so-called 'practical' geologist. Leslie's answer was that he had given the matter a great deal of thought and that the only difference he could see was that the so-called 'theoretical geologist', in drawing his conclusion, was hemmed in by millions of facts; whereas the so-called 'practical' geologist, in drawing his conclusion, was hemmed in only by the limits of his own imagination.

"The petroleum geologist, in his relation to the industry, finds himself dealing with two more or less related lines of activity; the one being correlation work within proven areas, and the other being exploratory work in wildcat areas.

Geology In Proven Areas

"Within proven areas it is necessary to collect and interpret the great mass of data revealed in the drilling of the wells within that area in order, first: to properly exclude underground waters from the producing sands; second: to define the producing sands both vertically and horizontally; and third: to determine by the study of the productive history of wells already drilled the probable productive history of the field in which the well is situated. In order that this mass of data may be properly collected so that accurate conclusions may be drawn, it is necessary to apply to the job the services of a trained mind.

"To the layman, the interpretation of an oil well log is a very simple matter, but to the experienced oil man, familiar with the idiosyncrasies of the average driller's records, the interpretation of a well log becomes a very complicated matter. It is only the trained geologist, familiar not only with the characteristics of the formations drilled through, but also with the human elements involved, who is enabled to either properly collect the data revealed by the drill, or to properly interpret those data. It is impossible to emphasize too much the importance of the exclusion of water from the oil producing sands or the proper interpretation of the extent and character of those sands to the oil company whose money is being spent in the development of the field.

"In the recent developments in southern California, the industry has been very fortunate in having had a large corps of trained geologists making an intensive study of the development as it has proceeded. The perfection of the practice of taking core samples from our wells has given us a very accurate knowledge of the character and extent of the oil bearing formations and, I believe we can safely say that the almost complete absence of water troubles, except on the edges of the fields, demonstrates clearly the value of the geologist in this work.

"An intensive study of well histories has also been made with respect to each of the newly developed fields and a series of curves has been prepared which have allowed a surprisingly accurate forecast of production to be made, again demonstrating the value of the trained mind when applied to these problems.

"Although giving full credit to the geologist for his value in properly developing proven areas, yet, at the same time, we must keep in mind the fact that there are certain limitations as to his functions which he, himself, must not overlook.

Supervising Drilling Wells

"The drilling of an oil well today, and particularly the drilling of wells in southern California, which range from 4500 feet to nearly 6000 feet in depth, is an engineering undertaking of no mean order and this undertaking requires the highest type of knowledge which can be gained only through long experience in actually drilling oil wells. This being the case, it is rare that a geologist has had the necessary practical experience to undertake the actual supervision of drilling wells. Although it should be the proper function of the technical man to determine the extent and character of the water bearing formations, of the oil bearing formations and of the strata most adapted for making water shutoffs, yet I do not believe that the geologist should have the final say with respect to the actual drilling of the well.

"It is very convenient for one's drillers to place the blame of their errors upon the shoulders of the geologist and I am convinced that the best policy is to define the relations between the driller and the geologist so definitely that this cannot be done. The ideal condition, of course, is to have a practical drilling staff of long experience who co-operate with to the fullest extent and accept the advice of the geological staff. It has been demonstrated that this plan can be successfully worked out and the results of this work have been very gratifying.

"A second limitation with which we have had but little experience is the danger brought about by over-refinement of our methods of well study. It is common experience in California that unless oil formations are cored and the cores carefully examined, it is not only possible, but even probable, that many saturated oil sands will be passed up by the drill without sufficient evidence being brought to the surface to reveal the existence of the saturated sand. On the other hand, our methods of coring and our methods of testing these cores are becoming so refined that I often fear that we are being misled into regarding as productive sands formations which should be passed up or disregarded.

"Exploratory work in wildcat territory, the second line of activity of the

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petroleum geologist in his relations to the industry, requires not only the highest type of geological training, but even of greater importance, it requires ripe and varied geological experience. There are so many indeterminate factors controlling the deposition of oil in commercial quantities and ordinarily there is so much at stake in the drilling of the average wildcat well, that it is necessary to exercise the greatest care even by the men of ripe experience in hazarding definite recommendations relative to the advisability of undertaking wildcat work. I would confine the definition of an 'experienced' petroleum geologist in this connection to the man who has had actual experience as a practicing petroleum geologist and who has been forced to carry the full responsibility of his failures so that those failures have been fully brought home to him.

"The most satisfactory and the safest way to handle exploratory work is to employ a staff of competent, younger men, with clear powers of observation and of sufficient technical training to gather the data and draw conclusions as to the value of the area under consideration. The results of the work of this staff of younger men are then reviewed by one of a corps of trained men of long experience, not only as to the facts, but also as to the conclusions. If differences of opinion arise either as to the facts or as to the conclusions, the matter is threshed out and the joint conclusion of the two becomes the basis upon which the executive proceeds.

"The highly confidential nature of the work of every petroleum geologist is so patent that it seems unnecessary to discuss it. It is the high standard of ethics which has been the rule of the geological profession that has been, to my mind, one of the most active influences in giving that profession the standing which it has today in the petroleum industry.

"It is the duty of each one of you to combat the fakirs and the so-called 'practical' geologists who are but parasites on the industry. I believe that the greatest good that can be done for the American petroleum industry by this association is to scrutinize applicants for membership with the greatest care. It is usually impossible for the layman to judge of the competency of the geologist and I know of no greater work that this association can do than to guard itself in such manner as to make a certificate of membership a letter of credit that every executive in the petroleum industry would recognize without question."

Abandon 4900-Foot Hole

CASPER, Sept. 27.—The wildcat test of the Continental Oil Producing Co. on Geary Dome, northwest of the Big Muddy field in Converse county, has been abandoned. The test, which is in the northeast of the northwest of 32-34-77, has been drilled for about two years and reached a total depth of 4912 feet. First Wall Creek sand was found at 4890 feet, carrying water and very small showing of oil. The Carter Oil Co. and the Fensland Oil Co. were also interested in the test.

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Contouring California

Some Observations On The Specimens Of Genus Homo Observed In The Upper Hollywood Formation At The A. A. P. G. Meeting

By Paul Wagner

LOS ANGELES, Sept. 27

THE appointment of W. W. Scott as engineer of the Dallas division of the United States Bureau of Mines has been made and he will take up his new duties shortly. Mr. Scott, who formerly was in charge of a Shreveport office under the lands and leasing division, has been temporarily stationed in California this summer, spending most of his time in the Los Angeles Basin fields and living at Long Beach. He succeeds at Dallas, Harry W. Bell, who recently resigned to take up the work of the Louisiana State Conservation Commission in the oil fields around Shreveport. Mr. Bell, it will be recalled, succeeded Ben K. Stroud, who more recently is in charge of research work in California for the National Tube Co., with Los Angeles offices. In the interim between Mr. Bell's resignation from the Bureau of Mines and the shifting of Mr. Scott to be his successor, the Dallas office has been temporarily in charge of P. S. Haury, associate engineer, and R. R. Kelly, assistant.

* * *

W. S. Kew, in charge of work of the United States Geological Survey in southern California and who was down on the program of the mid-year meeting of the American Association of Petroleum Geologists for a discussion of the Los Angeles Basin fields, has been active for years in Pacific Coast work. Mr. Kew was responsible for detailed mapping by the government over wide areas in California described as the Santa Clara drainage basin east of Santa Paula, Fernando Valley, a large part of the Santa Monica mountains, the Los Angeles Basin and the San Joaquin Hills. As a result of his work a three-fold division of the Eocene has been made through the addition of the Meganos formation; the introduction of new formational names Topanga and Mint Canyon, and the restriction of the term Vaqueros.

Mowry Bates, who in partnership with Bernard Lasky formerly had consulting offices at Tulsa, is dividing his time between his business address at 806 Merchants National Bank Bldg., Los Angeles, and his Orange ranch near Lindsay, Tulare county. Mr. Bates, who was in attendance on the Los Angeles meetings of the petroleum geologists, was one of the charter members of the association.

* * *

Among those making the trip from Texas were Robert T. Hill of Dallas and E. T. Dumble of Houston. To these men and others who were associated with them in early geological exploration of the southwest is credited the backbone of Texas scientific knowledge and much of the latterly disseminated geological data. They were to go over explorations in Texas a year ago with Joseph A. Taff, chief geologist of the Associated Oil Co., San Francisco, who also was very active in the early days of southwestern work. These three, with Dr. J. A. Udden of the Bureau of Economic Geology, Austin; William Kennedy, chief geologist of the Lone Star Gas Co., Dallas; and Professor G. C. Cummings of the Southern Pacific railroad interests, make up a half dozen scientists whose work stands out in bold relief.

* * *

Among the early arrivals at Los Angeles for the mid-year session was Dr. Charles E. Decker of Norman, Okla., familiarly known to his associates as "Daddy" Decker. Having held the office of secretary of the association since its inception, Dr. Decker is necessarily a familiar figure at all the meetings.

* * *

Carroll H. Wegemann, formerly with the United States Geological Survey and now chief geologist of the Midwest Refining Co., made the trip from Denver. E. L. Estabrook, of Casper, Wyo., Petroleum engineer, also with the Midwest, was another early arrival.

* * *

John R. Suman, manager of the Rio Bravo Oil Co. (Southern Pacific railroad subsidiary) and general superintendent in Texas of the Associated Oil Co., is visiting a sister in Los Angeles and attending the geological sessions.

* * *

E. DeGolyer, vice president and general manager of the Amerada Petroleum Corp., refuses to forget that he is by training a geologist and his progress into executive ranks doesn't preclude his attending association meetings regularly. He was on the ground early at Los Angeles and attended some of the sessions of the American Association for the Advancement of Science, which includes the Geological Society of America and which preceded the sessions of the petroleum geologists.

* * *

Max W. Ball, president of the Ute Petroleum Co. and the Western Pipeline Co., Denver, spent a busy week in California preceding the geological meeting. His presidency of the association made it imperative for him to be on the ground early and it was due in a large measure to his tireless energy that the meeting proved the success that it did.

Whaley Well Shut Down

BILLINGS, MONT., Sept. 27.—The Whaley well, in 29-14-26, Flatwillow field, which has at various times been rumored to have important oil showings, has been shut down temporarily. Both the Ellis and the Embar formations were penetrated without result.

WILKES-BARRE, PA., Sept. 27.—Jones Oil & Supply Co. recently opened a second service station here. This station has five gasoline pumps and will be open 24 hours a day. The Texas Co. products are being handled. William T. Jones, head of the company, formerly was a salesman for The Texas Co.

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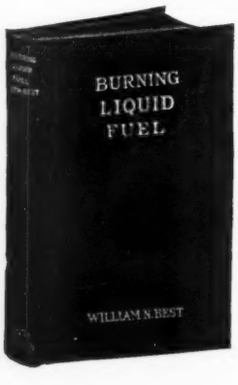

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New Wyoming Railway Announces Rates

CASPER, Sept. 26.—The Wyoming North and South Railroad Co., now completing a line from Illco, northwest of Casper, to Salt Creek, has filed freight tariff with the Interstate Commerce Commission. Commodity rates announced in this are as follows:

Oil well supplies, 25 cents a hundred; minimum weight, 30,000 pounds.

Bricks, blocks and tile in carloads, 12.5 cents per hundred; minimum weight 60,000 pounds.

Cement in carloads, 20 cents per hundred; minimum weight, 50.000 pounds.

Lumber in carloads, 20 cents per hundred; minimum weight 40,000 pounds.

Merchandise in carloads, 40 cents per hundred; minimum weight, 24,000 pounds.

Sand, gravel, rock, stone and cinders in carloads, 12.5 cents per hundred pounds; minimum weight, 40,000 pounds.

Western Refiners In Tulsa Quarters

Staff Special

TULSA, Sept. 26.—Officers of the Western Petroleum Refiners Association were opended on the fifth floor of the Cosden building here this week. Secretary Howard Bennette and his staff of workers are gradually getting settled after their move from Kansas City where headquarters have been maintained for several years.

Offices of traffic manager and commerce counsel will be maintaind at 304 Interstate building, Kansas City until Nov. 1. The car tracing department will remain there permanently. P. A. Conway, traffic counsel for the Kansas Public Utilities Commission, has been selected to succeed A. T. Sindel as traffic manager and commerce counsel after Nov. 1. Mr. Sindel has tendered his resignation effetive on that date.

Mr. Conway was connected with the Interstate Commerce Commission in several important capacities for eight years prior to taking his position with the Kansas commission.

Japanese Oil Men Seek News From Home

ORANGE, TEX., Sept. 26.—Officials of the Kishi Development Co. and the Orange Petroleum Co. who have relatives in Japan have heard nothing in regard to their safety.

S. Namumro, vice-president of the Orange Petroleum Co., sailed from San Francisco the middle of the week, to make a personal search for his family, for whom the gravest fears are felt.

K. Kishi, head of the two Japanese companies in the Orange field has heard nothing from his brother, Dr. H. Kishi, who was visiting in his former home at the time of the catastrophe. The local man has made every possible effort to get into communication with his brother, or to learn something regarding him, but so far has failed.

America Supplies Korea With Most Oil

WASHINGTON, Sept. 28.—Korea or Chosen, a dependency of Japan since 1910, is not often mentioned in connection with the export trade of petroleum. However, this country provides a market for several million dollars worth of these products annually. There is no local production, so the imports may be considered as the consumption totals. The official returns for 1922 show that Korea received for that year more than 1,000,000 gallons of gasoline, over 7,000,000 gallons of kerosene and other illuminating oils, 2,000,000 gallons of lubricating and heavy mineral oils besides 2,500,000 pounds of paraffin wax and candles, having a total value of over $3,000,000.

A review of the import returns over a period of years shows that the annual demand for kerosene has fallen off about 2,000,000 gallons from the requirements of 1913. This is largely due to the unfavorable trade conditions that were keenly felt throughout the Orient all during 1921 and most of 1922. A secondary factor affecting the market for kerosene is the steady growth in the use of electricity as a source of illumination. In substantiation of this it might be mentioned that the value of electric light equipment imported has grown from $39,000 in 1913 to $800,000 in 1921, the latest year for which these returns are available. This lessened demand for kerosene, which at present amounts to 0.4 gallons per capita for a population of 17,500,000 is apparently only temporary in spite of the growth in the use of electricity and should improve as commerce approaches a more normal status.

The United States is the principal source of the kerosene imported, although some of it comes from the Dutch East Indies. The market for lubricating and other heavy oils is largely in the hands of American oil companies, however, about a third of the market was supplied from Japan in 1922. In this same year America furnished more than half of the paraffin wax, while in previous years, the larger share of it came from British India or the Dutch Indies.

The preliminary returns for 1922 do not mention the distribution of products by ports, but for the previous year, the ports of Fusan and Chemulpo received most of the kerosene or nearly 50 and 40 per cent, respectively, of the total. Chemulpo was the largest distributing point for lubricating and other heavy oils receiving about 43 per cent of the quantity imported, while over a quarter of it is credited to Fusan, and 10 per cent to Chinnampo. Fusan received 80 per cent of the praffin wax imported during 1921, while Chemulpo was the second port for this commodity, distributing about 17 per cent of the total. The trade in candles has fallen off until it is of minor importance at present. Seoul is the largest market of any of the parts for this product.

The only exports mentoned in the official customs returns are 5,889 gallons of kerosene for 1921 and 4,176 gallons for 1922. These totals are evidently re-exports as there is no local production of kerosene.

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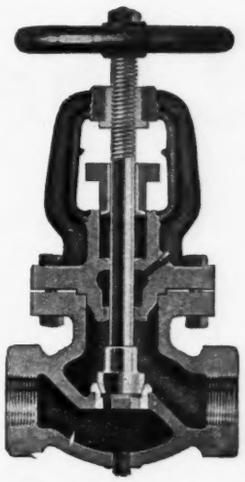

SCREWED END CAST STEEL

Sizes 1¼" to 2½"

300 lbs. pressure, 750° F total temperature
400 lbs. pressure, 700° F total temperature
500 lbs. pressure, 700° F total temperature

ILLUSTRATION AT LEFT

FIGURE NO. 684 GLOBE
NO. 685 ANGLE

SCREWED END,

FORGED STEEL

Sizes ¼" to 2"

500 lbs. pressure,
1100° F temperature

ILLUSTRATION AT RIGHT

FIGURE No. 682 GLOBE
No. 683 ANGLE

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Sidelights From Geologists' Notebooks

This Description Of Montana Written More Than Five Years Ago But Still Closely Applicable To Much Of State

FORT BENTON, MONT.

OUT where the handclasp's a little firmer,
Out where the sun shines a little brighter, etc.,
That's where the West begins."

You remember that little jingle (probably written by a man who had spent all his life around Provincetown, Mass.) that is for sale in all the curio shops and railroad stations west of Pottsville, Pa.? Well, it's all wrong. It should read:

Out in the land where the two-bits reign,
Out where you get a dollar six-bits change.
That's where the West begins.

Just before leaving New York I was riding on a bus. Near me on top was a young fellow who recognized an acquaintance on the sidewalk near one of the downtown stops. They carried on a conversation something like this before the traffic cleared and we went on:

"Hello, Bill, where've you been hidin' recently?"

"Hello, Ed. No place. I ain't seen you for a long time, neither."

"No, and you won't for a longer while, too. I'm goin' out West."

"Za so? Where yuh goin'?"

"Oh, out to punch cattle in Toledo, Ohio."

And the resident of Toledo speaks of Omaha and Denver as "Out West." The only claimants to the title of "Westerner" who boast about it are the recently migrated easterners in California. And there you have another vicious circle. The real native sons will do some loud claiming, but with discrimination. They are afraid of the only sure fire, non-refillable double-action comeback that begins with—

"The miners came out in forty-nine ....."

Once Navigation Point

It wasn't many years ago that this was the most prosperous point in Montana. It was here that the steamboats that plied up and down the Missouri River reached the western end of their journey, some twenty-five days out of St. Louis, and prepared for the short trip downstream again. It was here that the adventurous pioneers gathered for their trip into the interior or came out with freight of cattle, hides or gold that was destined for the markets of the East. The remnants of the old fort which gave the locality its name still exist on the eastern edge of town, and the last of the Missouri fleet of the old days is passing a senile old age reposing restfully in the black mud, stirred only by occasional high water.

It is a pleasantly restful old town settled down here on the flood plain of the Missouri, and practically surrounded by cut-bank cliffs of black shale. Some far-sighted citizen a long time ago planted several rows of cottonwoods along the river bank. These trees now of very large size, form an attractive shelter from the sun in summer and an effective break for the wind in winter. At this time of year one is reminded, while walking through the streets, of some of the New England villages with the rows of stately elms guarding each side of the road. They have adopted here the somewhat Spanish custom of giving band concerts weekly on the Plaza which faces the river. In the evening with the moon shining brightly on the swiftly running stream and the bare cliffs opposite, the dreamy music has a magic quality that soothes every care, lending an enchantment to the place that is not soon forgotten.

The business of finding enough oil to keep the flivvers running another year lacks many of the ordinary complications out here. There is not the bustle and worry that another may beat you to something real good. The spirit of intense competition is subordinated to the task of thoroughly combing over the whole country for sufficient data in an effort to determine whether or not the chances for production warrant the expenditure necessary for operating. Work here must be planned far ahead, as the towns are widely scattered and the settlement of the country not yet so well established as to afford accommodations at every house. Practically all the rock exposures are in the stream beds or else in the breaks of the rivers, which means that the traveling is over very rough country. We work on horseback, much as you do in South America, carrying along with us as much personal equipment and camping material as possible.

Until the last few years most of this country was given over entirely to cattle ranches. Individuals actually owned little land but there was unlimited free upland over which cattle ranged, fattening rapidly on the highly nutritious "buffalo" grass. Shortly after the Great Northern Railway was completed, immigrants, chiefly Scandinavians from Minnosota and Wisconsin, took advantage of the homesteading privilege and filed on the waterless plains. They are hard working and thrifty but with the handicaps of drouths and high operating expense many have found dry farming a failure.

Ranchers Forced Out

The advent of the "dry landers" has confined the cattle ranchers to areas actually owned along the bottoms and has forced many of them to move across the line into Canada until recently when many of these homesteads have reverted to range and ranch. These cattlemen live up to the very best story book traditions. The stranger entering their ranch immediately becomes their guest—uninvited. He is expected to ride to the headquarters, unsaddle and stop at the house for a cup of coffee. If it is near evening he is expected to spend the night. In the course of our work we found it helpful to spend several days in one locality and many times very cordial invitations have been granted to make the ranch our stopping place for as long as possible. The geologist usually shuns curiosity. Many of these people, however, are provocatively incurious. They apparently neither care from whence you came nor your destination. If the character of your work seems unusual they discreetly wait for some mention of the fact from yourself—but then look out. Give them an opportunity and the flood gates of repression are open and they will have some hearty laughs at the way you ride, at the way you saddle your horse, at your equipment, at our timidity at crossing streams; and you may be sure that very little escapes their observation. From that time on you are probably better friends.

The dry land farmer after filing on the land first imports enough finished lumber to throw together a small one or two room oblong box shack. Opened boxes form the nucleus of the dining furniture. The modern oil cook stove together with a bunk, covered with rough blankets, built in across the end of the shack complete an arrangement which rivals in compactness any California bungalow. The inside is lined with a heavy paper studded into the walls with large tin discs as a protection from the hard cold winds of winter. Onto this paper are pinned or tacked pictures of the leading feminine screen stars cut from the pile of photoplay magazines reposing in the corner. I remember spending the night in such a place as this. The owner was one of the new crop and was having a tough time scratching a living from his quarter section. He had one great advantage in owning jointly with a neighbor a small upland bog which held water most of the year. Bacon, biscuits and beans were the only things he had to eat. Shortly after sundown the frogs in the bog started their nightly chorus, the higher pitch "knee-deeps" alternating with the more dignified "jug 'o rums." The farmer was mystified by our desire to kill some of these "varmints." The next morning we had thirty of the finest pairs of legs that ever came off a bull frog. This man had a high priced delicacy right in his back yard but no way of knowing its possibilities.

Relics of First Settlers

Everywhere is seen evidence of the former inhabitants of this country. The Indians have been segregated into the several reservations and the buffalo have disappeared but their former occupancy can not be doubted. "Tepee Rings" or circles of small rocks are very common. They are found on small rises immediately above the rivers. These rock circles, about twenty feet in diameter were used to weight down the bottom of the tepee. At one place where the river flows in broad meanders touching first one cut bank and then the other, on a broad flood plain bounded on three sides by the river and on one by the cliffs a large Indian mas-

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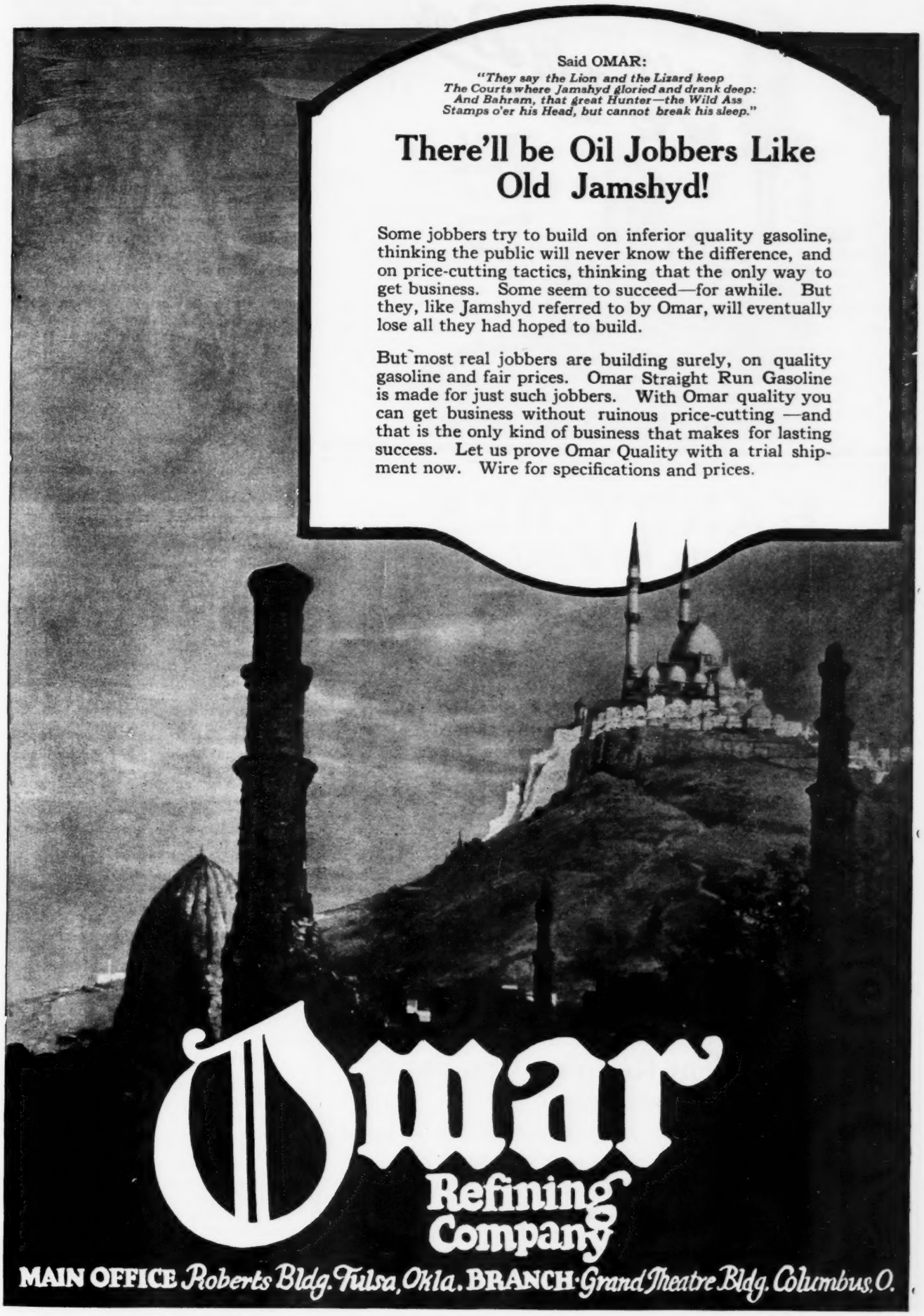
sacre occurred. Here the Indians, after retreating from the famous Custer fight were surrounded, trapped and slaughtered. Their bones together with those of their animals and the bits of iron rust which once were their implements now bear mute testimony of the struggle. Many redskins must have "bit the dust" that day.

It is hard to believe the stories that are told regarding the buffalo. In the migratory season it is said that the herds would take several days to pass certain places. All accounts seem to agree that they were docile creatures and easy to kill. There is one place, north of the Blackfoot Reservation where the Indians had an established killing ground. Their method of wholesale slaughter was simple. Out of the gently rolling country rises a long easy slope ending in a cliff. Converging stone fences were built up this slope with the narrowest point at the cliff. The trick was to get the buffalo herd started up the slope in the direction of the cliff and gradually stampede them over. This usually happened in the fall when tribal meetings were held. After the kill the squaws were sent down to gather some meat for the winter. Only the tongues and a small portion of the humps were used. I hope this information never reaches Chicago as some of the packers would probably turn into maniacs computing the profit possibilities wasted.

The struggle for existence in those days must not have been very keen even though the red population never increased greatly, due to prevalence of disease. It is easy to see then why these particular tribes never became industrious and to account for their lazy shiftless habits under Government protection. It is said that the natives at Assiniboine eat the meat that the dogs kill and bring in. At that it's an even bet as to whether the dogs or the buzzards get it first!

The Blackfoot tribe, latterly made famous by Glacier Park, seems to be a higher grade. The good living earned by advertising the park by lounging in full regalia around the hotels, has educated them up to higher standards. At least some of them. I ran onto a small group of tepees in one corner of the reservation when lost. The people spoke little or no English or else pretended so. All my questions elicited only the characteristic grunt until I produced a can of peaches with the gaudily colored paper wrapper. Their joy at receiving this was comically expressed in more rapid series of grunts with a rising inflection. I suppose that most of the youngsters spoke well as the government maintains schools at the agency at Browing.

A friend of mine told of a peculiar experience he had in the Elk Basin country last year. A man had homesteaded a quarter section the year before about the time the discovery well in that field came in. In the flurry that followed, considerable attention was given to the conflicting titles that arose from the old dispute over patented and oil placer claim land. The representatives of one of the prominent oil companies visited this man on his ranch one day with the purpose of obtaining his waiver of rights of ownership. In a bluff and hearty style they opened up the argument explaining that he had no rights and that any court would decide in favor of the oil company but


Said OMAR:
"They say the Lion and the Lizard keep
The Courts where Jamshyd gloried and drank deep:
And Bahram, that great Hunter—the Wild Ass
Stamps o'er his Head, but cannot break his sleep."
There'll be Oil Jobbers Like Old Jamshyd!
Some jobbers try to build on inferior quality gasoline, thinking the public will never know the difference, and on price-cutting tactics, thinking that the only way to get business. Some seem to succeed—for awhile. But they, like Jamshyd referred to by Omar, will eventually lose all they had hoped to build.
But most real jobbers are building surely, on quality gasoline and fair prices. Omar Straight Run Gasoline is made for just such jobbers. With Omar quality you can get business without ruinous price-cutting —and that is the only kind of business that makes for lasting success. Let us prove Omar Quality with a trial shipment now. Wire for specifications and prices.
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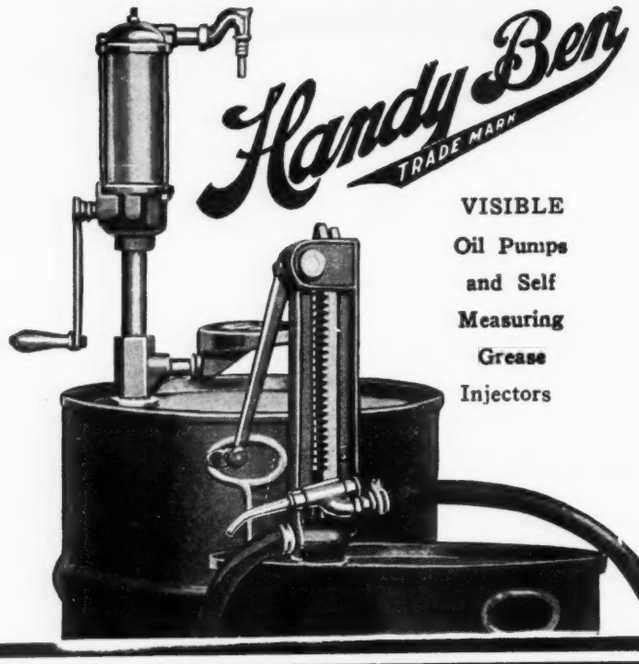

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If your name is not on our books permit us to show you.

Oil City - Pennsylvania

to relieve themselves of the trouble of suing, the company would pay the man one hundred dollars for his signature on the document they had prepared.

The rancher put on a docile air and said, "'s too bad. I was a lookin' to get rich off a this here oil, but I guess it's as you say. However, if I have no claim I don't guess I'll sign no papers. C'mon in and set while I stir up some flapjacks." The oil man stayed there two days gradually raising their ante to five hundred but the ignorant rancher merely repeated his grunts and changed the subject. As they were about to depart they offered one thousand dollars and decided to quit. This offer was refused but the "ignorant rancher" immediately brightened up and in clear cut and legal language explained to the men exactly what previous court decisions on this subject had been, what his status in the case was and the fact that he had been a lawyer for several years and had handled several similar cases. The upshot of the whole affair was that he received many thousand dollars for his piece and was given a position in the legal department of the company.

British—in Part

The settlers of many of the towns along the railroads, especially those near the border, are very often British or of English descent as contrasted to the almost universally Scandinavian influx which has peopled the homesteaded area. These town people are the tradesmen for the area and strangely stick to many purely British customs after the manner of their neighbors just across the line. It is amusing to wander through a country where Olaf is helping Jon with his fall plowing and then stumble into a small town with a rough but still recognizable imitation of an English tavern with a large signboard announcing that this is the tavern of the "Two Bills." A little further on will always be the "Two Eds", and one wonders whether or not industrious search will not disclose a "Spyglass" or a "Lion and Unicorn." Resemblance to the prototype seems to cease on the outside since un-iced Kalispell beer fails to take the place of creamy ale, and the rosy cheeked barmaid turns out to be a slovenly old fellow called in from repairing his Ford.

(The foregoing is one of a series of letters from geologists, collected by L. G. Huntley, Pittsburgh, and J. Earle Brown, San Antonio, consulting geologists.—Editor)

Dutton Basin Is Active

CASPER, Sept. 27.—Interest continues in the Dutton Basin country of Fremont county. The Texas Production Co. has drilled two validating holes in 34-34-90 to depths of around 500 feet and will drill a third on 27-34-90.

In the same area, B. B. Ward and others, of Aberdeen, S. D., have been drilling for several years in the northeast quarter of 28-34-90 and has reached depth of 2200 feet. Myers Petroleum Co. is down 1600 feet in the southwest of 24-33-90 and has cemented five and three-sixteenths. This territory is considered to have possibilities for light oil production.

Highly Volatile Natural Gasoline Good Refinery Refrigerant

By L. D. Wyant,
Chemical Engineer, Bureau Of Mines

Report Of Investigation, Bureau Of Mines

THAT natural gas-gasoline can be used to advantage as a refrigerant is suggested by the fact that the "make" tanks and other parts of the equipment of gasoline plants frequently become coated with frost. The experiments reported in this paper confirm this assumption and indicate that volatile gasoline can be used to advantage in many refrigerating plants.

The Bureau of Mines is making a study of wax distillates in order to find out why satisfactory lubricating oils and waxes can be made easily from certain crude oils and only with difficulty from others. In the commercial distillation of crude petroleum it is customary to separate the distillates into the following groups: (A) Gasoline and napthas, (B) Kerosenes, (C) Gas oil, and (D) Wax distillate (consisting mostly of light lubricating oil together with small amounts of paraffin wax).

Wax distillate is separated into oil and wax by a process of chilling and filtering under pressure, followed by various refining operations**. For experimental work of this character the Bureau of Mines has installed an experimental unit consisting of a refrigerating plant, cold room, wax chiller, filter press, sweating oven, etc. Facilities are also available for the distillation of crude oil in semi-commercial quantities.

In commercial wax plants ammonia is almost universally used as the refrigerating medium, but the compressor available for use in the bureau's experimental plant was built to handle natural gas containing gasoline vapor. From theoretical considerations gasoline vapor should be a satisfactory refrigerant, and it was thought desirable to determine its practicability with the equipment available before purchasing the expensive equipment necessary for the use of ammonia.

The present paper describes the results of experimental runs using gasoline as a refrigerant. The equipment as installed has proved adequate when using gasoline, and the results of the tests are published to provide data for making similiar installations. These should prove especially useful where natural gas gasoline is readily obtainable.

Principles of Refrigeration and Refrigerants

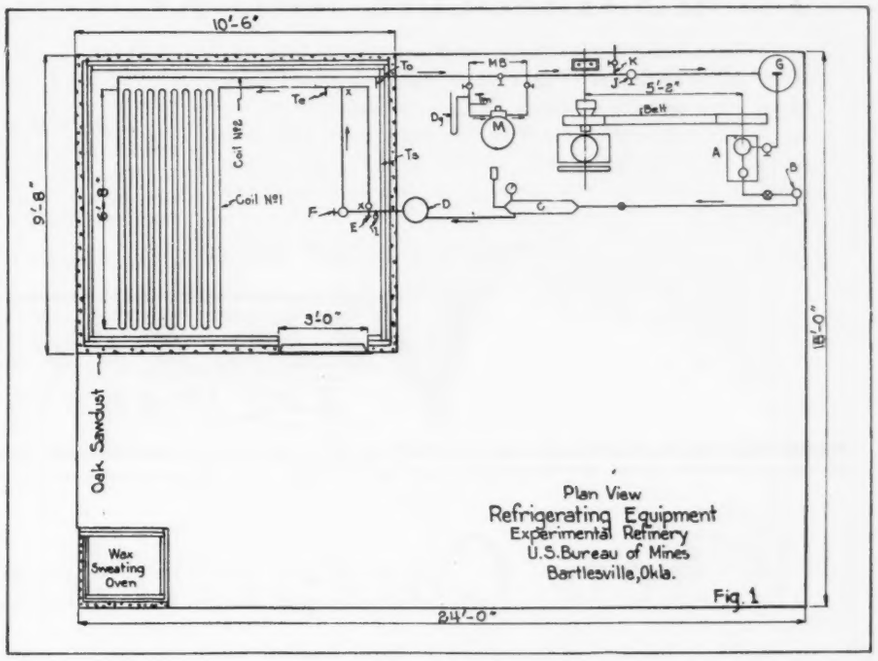
The principle involved in producing refrigeration by use of volatile gasoline is the same as that commonly used when refrigerating by use of ammonia, sulphur dioxide, carbon dioxide or other similar substances.

In the compression type of mechanical refrigeration—of which the installation described herein is an example—the cooling effect is produced chiefly by utilizing the latent heat of vaporization of the refrigerating medium as described below. This principle can be applied with any substance which exists as a vapor at low temperatures and pressures and as a liquid at normal temperatures and from low to high pressures. The pressure necessary to condense the more usual refrigerants varies from 47.61 pounds per square inch for sulphur dioxide to 826.4 pounds per square inch for carbon dioxide (at a temperature of 680 degrees F.)*.

Other qualifications are of course necessary before a substance can be widely used as a refrigerant. For instance, it must not chemically attack or injure the compressor, piping or other parts of the refrigerating system, and it must be obtainable in sufficient quantities and at a price sufficiently low.

In the usual installation the refrigerant is compressed to the necessary working pressure and the heat evolved is dissipated either by air or water cooled coils. The cooling of the vapors to a temperature below their critical temperature at the existing pressure results in their condensing to a liquid. When this liquid is released to a pressure lower than its critical pressure at the existing temperature, volatilization takes place with a consequent absorption of heat.

Unfortunately a perfect refrigerating medium for commercial use has not yet been found. Each has its points of superiority and its defects. For instance, sulphur dioxide needs only low pressures to operate, but it is poisonous and if contaminated by water vapor quickly attacks the compressor and piping. Further, it is impossible to obtain as low a temperature with sulphur dioxide as with ammonia or with volatile gasoline.



Ammonia, the most universally used refrigerant, is efficient but relatively high pressures must be carried if used in a compression plant. The fumes of ammonia in even low concentrations are fatal**.

Carbon dioxide is non-inflammable and not actively poisonous, but the pressure necessary to condense it at normal temperature is so high as to be a constant source of danger.

Volatile gasoline seems to be satisfactory as a refrigerant, but has the one undesirable feature of being inflammable. Its vapor in low concentrations will not affect persons injuriously nor taint or spoil foods as will sulphur dioxide or ammonia gas.

Experimental Data

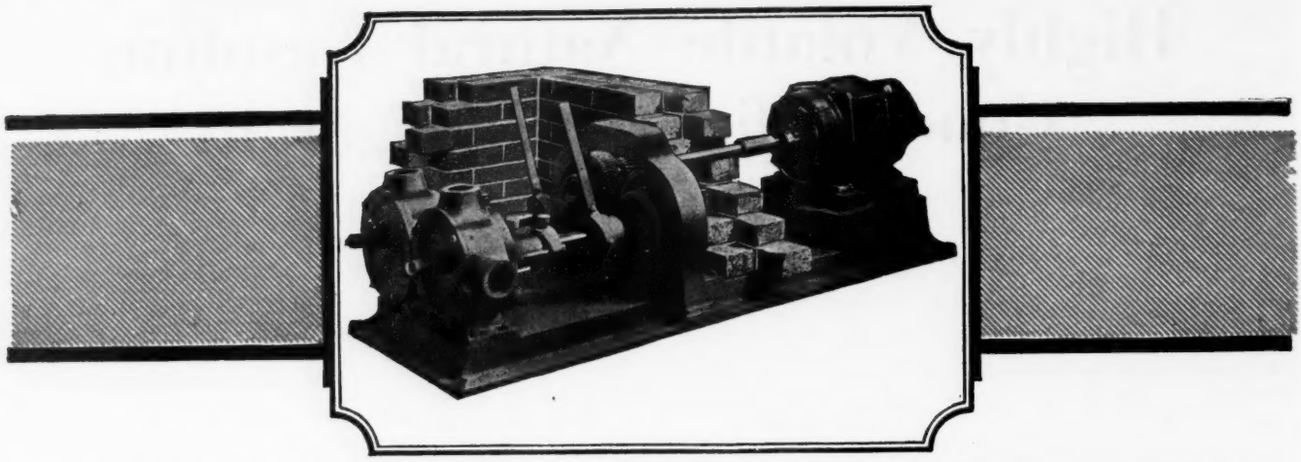
In the refining of wax distillate to its finished products a press room temperature of 45° to 18° F. in maintained, while the distillate entering the press must be several degrees cooler than the press room. Hence a refrigeration unit to give satisfaction must be capable of easily producing and maintaining temperatures between these limits.

After the bureau's refrigerating unit was completed, several test runs were made to determine the best working

**Hamor, W. A., and Padgett, F. W., The technical examination of crude petroleum, petroleum products, and natural gas, 1922, p. 29; Bacon, R. F., and Hamor, W. A., The American petroleum industry, vol. 2, 1922, pp. 475, 644 to 779.

*Kent, William, Mechanical engineers handbook (Figures from table by Lorenz), 1916, p. 1342.

**Siebel, J. E., Compend of mechanical refrigeration, 9th ed., 1918, p. 151.



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This powerful Viking Twin Oil Pump handles two different kinds or grades of fuel oil at the same time. Each pump has a capacity of *ninety gallons a minute.*

Twc pumps are mounted on the same base, each controiled by a friction clutch. If desired, but one or both pumps may be used. Can be supplied with or without fire wall base.

Leaky pumps are the oilman's biggest cause for worry. One of his greatest losses is through continual pump leakage.

In the Viking pump, *all leakage is eliminated.* In fact, you are *guaranteed* that it will not leak.

The Viking principle is a vast improvement over ordinary pumps. Our pump catalog explains it in detail. Write for it—TODAY.

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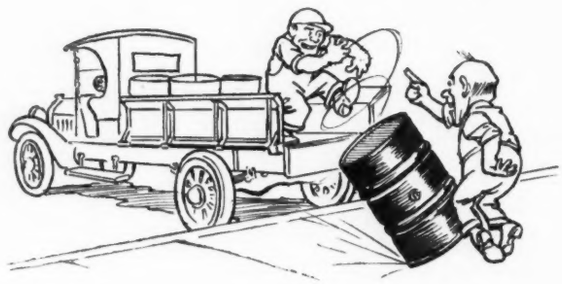

AS it usually is, and the manufacturer of greases, oils or other products, is anxious to make the sale, he can well emphasize the condition in which his product reaches the buyer.

The buyer is interested in this!

Will what you put into your containers reach its destination in the same excellent condition it leaves you?

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conditions and the temperatures which could be produced and maintained. No attempt has been made to work out the various interesting details connected with the theory of refrigeration which are suggested by the data collected in these trial runs. The results herein given, however, while not sufficient to determine the actual efficiency of volatile gasoline as a refrigerant, are reported in sufficient detail to allow of the construction of similar installations.

Description of Installation

The refrigerating apparatus consists essentially of a two-stage crosshead type compressor (size 4½ x 2 x 4½", (rated capacity 21 cubic feet free-air per minute), driven by a 6 h.p. gasoline engine, a 30-gallon gasoline supply tank, a water-cooled coil, an expansion valve and expansion coils as shown in Figure 1 on page 99.

The following material was used:

1—Gasoline vapor tank, capacity 5 gallons.
1—Sheet-iron tank, 35 gallons, containing cooling coils.
29 ft. 8-in.—2" standard iron pipe
13 ft. 6 in.—1½" standard iron pipe.
4 ft. 0 in.—1¼" standard iron pipe.
190 ft. 0 in. —1" standard iron pipe.
17 ft. 3 in.—¾" standard iron pipe.
55 ft. 4 in.—½" standard iron pipe.
2—1½" standard brass valves.
1—1¼" standard brass valve.
2—1" standard brass valves.
2—¾" standard brass check valves.
1—½" needle expansion valve.
2—½" standard pop valves.
3—standard pressure gages.
27—standard 1" return bends.
4—standard 2" return bends.
50 miscellaneous small pipe fittings.

The inside dimensions of the cold room are 8 feet 7 inches by 7 feet 9 inches, the height from floor to ceiling is 6 feet 9 inches. The floor consists of two 3-inch layers of prepared compressed cork board laid on four inches of concrete. On top of the cork board is two inches of finish concrete which serves as the floor of the cold room. The walls consist of upright 2-inch by 4-inch yellow pines studding, spaced two feet center to center, covered outside and inside with 1-inch by 12-inch yellow pine boards. The 4-inch annular space thus formed is filled with dry oak sawdust. On the inside of this wall is placed two 3-inch layers of prepared compressed cork board. The roof is built in the same way, having two 3-inch layers of prepared cork board, 1-inch of yellow pine, and 4 inches of oak sawdust. The prepared cork board was furnished in slabs 3 inches thick by 1 foot by 3 feet. In order to insulate more efficiently the cold room the two layers of cork board were so placed that all the seams of the first layer were covered by the second layer, and the edges of each piece of cork were dipped in hot high melting point asphalt before being set in the wall. The cold room has only one opening, a 3 by 6 refrigerator door of the type commonly used in refrigerator construction.

Acknowledgments are extended to H. P. Porter of the Gypsy Oil Co. who loaned to the bureau some of the equipment used in making these runs, also to John E. Arnold, refrigerating engineer, Tulsa, for helpful suggestions regarding the compilation and presentation of the data herein reported.

The many helpful suggestions and constructive criticisms of the members of the Bartlesville experiment station of the Bureau of Mines are also gratefully acknowledged.—L. D. W.

Arrangement of Apparatus

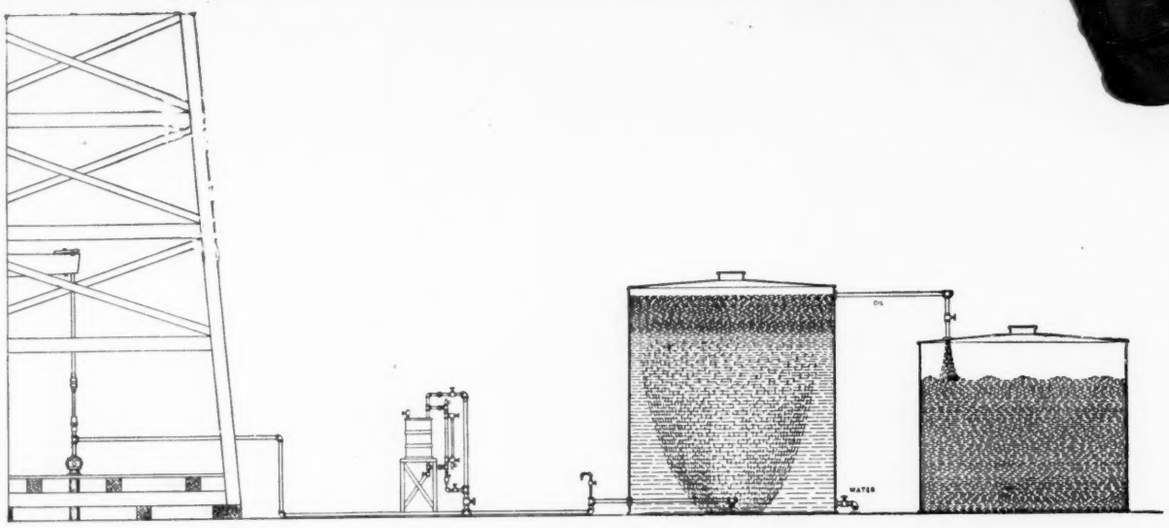
The arrangement of apparatus is shown in Figure 1. The high-pressure side of the refrigerating system consists of the compressor "A"; the lubricating oil trap "B"; ¾-inch standard pipe connecting trap "B" to tank "C"; ½-inch standard pipe connecting tank "C" to the water-cooled coil in tank "D." This coil is made from 40 feet of ½-inch pipe coiled into a spiral. The cooling coil is connected to the expansion needle valve "E" and the enclosed pop valve "F" (both in the cold room) by ½-inch standard pipe. Tank "C" is used merely as a volume tank for the purpose of reducing the compressor impulse on the expansion needle valve.

The low-pressure side of the system consists of two expansion cooling coils in the cold room, a 1½-inch return line from the second expansion coil to the gasoline supply tank "G," which is out-

Table 1—Data Taken During Trial Runs Of Refrigeration Unit Experimental Refinery Equipment

Time, hours	Operating Conditions outside of cold room: Temp., °F.	Pressure, in mercury supply tank	Pressure, lb. per sq. inch, high stage	Cooling Water Data: Temp. of discharge °F.	Gallons per min.	Cold Room Data: Pressure, lb. expansion valve	Temp. of vapor after expansion, °F.	Temp. cold room, °F.	Temp. vapor discharge, °F.	Vapor Measurement Data: Vol. gas by meter, cu. ft.	Pressure at meter, inches mercury	Temp. at meter, °F.	Vol., cu. ft., corrected	Cubic feet per min.
Run No. 1														
10:45	58	+8.16	130	90	.75	80	50	56.0	55	0	+4.3	56	0	0
11:00	58	+9.20	140	80	1.34	100	10	52.0	42	104	7.4	36	132	8.80
12 Noon	64	—0.50	112	76	1.54	100	— 4	37.0	18	374	—0.5	13	420	7.00
1 p. m.	70	—1.50	120	79	1.65	122	—12	29.8	9	568	—3.6	6	545	9.09
2:00	74	—1.00	130	78	1.36	128	—11	28.5	8	469	—2.8	6	447	7.45
3:00	74	—2.00	130	74	1.42	136	—14	25.0	2	491	—4.8	0	472	7.89
4:00	72	—3.00	130	84	1.32	126	—17	22.0	—2	525	—4.8	—2	481	8.01
5:00	70	—2.25	120	84	1.04	125	—17	20.0	—3	685	—4.8	—1	618	10.30
													Av.	7.077
Run No. 2														
10:15	60	+2.04	45	65	1.42	50	45	57.5	56	0	—3.0	56	0	0
11 a. m.	65	—4.50	115	76	1.32	114	0	43.5	24	319	—6.0	23	272	6.05
12 Noon	69	—4.00	95	80	.95	84	— 7	36.0	12	606	—5.6	10	497	8.27
1 p. m.	70	—4.50	100	84	.95	90	— 9	32.0	12	565	—6.0	9	498	8.30
2:00	70	—3.00	98	80	.75	84	—10	29.0	8	552	—4.7	7	485	8.10
3:00	68	—5.00	125	92	.65	106	— 8	28.0	8	438	—6.6	8	445	7.42
4:00	67	—5.60	115	90	.78	100	— 9	25.0	7	475	—7.9	6	395	6.60
4:45	67	—6.50	115	89	.99	104	—12	24.5	6	291	—8.0	6	291	6.35
													Avg.	7.29
Run No. 3														
9:20	68	+8.16	80	95	.75	140	65	64.5	67	0	5.0	58	0	0
10 a. m.	70	—2.50	125	96	.85	120	— 2	46.8	20	314	—2.0	19	329	9.50
11:00	74	—4.50	140	80	1.00	145	— 2	37.5	15	487	—4.0	12	489	8.12
Noon	76	—3.00	120	93	.75	118	— 3	35.0	14	407	—1.0	12	419	6.98
1:00	78	—2.75	124	89	1.25	120	— 5	32.5	12	415	—1.7	11	424	7.26
2:00	80	—1.50	135	98	.75	126	— 6	30.7	10	419	—2.2	8	434	7.22
3:00	79	—1.00	108	87	.75	98	—14	28.5	8	482	—1.0	6	486	8.10
4:00	78	—4.50	145	74	.75	130	—14	27.0	6	413	—4.1	6	404	6.78
5:00	77	—4.0	145	80	1.50	130	—14	25.0	5	445	—3.4	5	435	7.25
6:00	76	—4.25	149	74	1.50	140	—14	24.0	4	454	—3.7	4	439	7.32
7:00	73	—5.00	145	73	1.33	128	—14	23.0	3	443	—4.2	3	428	7.15
8:00	71	—5.50	145	73	1.33	130	—14	20.3	2	437	—4.6	1	411	6.45
9:00	70	—5.50	122	85	1.45	118	—15	20.5	2	414	—4.0	1	389	6.49
10:00	70	—5.75	135	75	1.30	120	—15	19.0	2	484	—5.2	1	446	7.42
11:00	69	—6.25	138	73	1.50	120	—15	17.3	1	446	—5.7	—2	407	6.80
12:00	68	—6.25	138	71	1.30	120	—16	16.0	1	420	—5.4	—2	387	6.45
1 a. m.	67	—6.25	138	71	1.25	120	—17	14.5	0	491	—5.4	—2	435	7.25
2:00	66	—6.25	138	70	1.23	120	—17	14.5	—2	434	—5.4	—3	379	6.32
3:00	65	—7.50	112	70	1.25	100	—18	14.5	—2	418	—6.8	—1	368	6.14
4:00	63	—7.50	127	70	1.50	118	—18	14.5	—3	449	—7.8	—3	373	6.22
													Avg.	6.75

Types of TRET-O-LIGHT Plant



No. 3—Low Pressure TRET-O-LIZER For Pumping Wells

This type of TRET-O-LITE Plant is suited to pumping wells in which gas pressures are low.

A 50-gallon TRET-O-LITE drum is used as TRET-O-LITE reservoir, same being fitted with a filling valve at top, a water gauge to show level of TRET-O-LITE, a sight-feed to regulate flow, and a gas riser.

A 2% solution of TRET-O-LITE is used, 1 gallon of TRET-O-LITE to 49 gallons of oil or soft water, depending on whether oil-soluble or water-soluble TRET-O-LITE is used.

The TRET-O-LIZER is over the flow line close to the well and 4 feet above the line.

Gas rises in the riser displacing the TRET-O-LITE in top of drum, the TRET-O-LITE flowing by gravity into the flow line. Mixing of the TRET-O-LITE with the emulsion takes place in the flow line, which should be at least 1500 feet long unless a special mixer is used.

Oil and water separate in the Settling Tank. Pipe line oil flows from top of settling tank to pipe line tanks. Water is drawn off at bottom of settling tank, which should be kept about half full of water.

Cost of treating fresh cut oil or tank bottoms is the lowest known—½ cent to 2½ cents per barrel of oil recovered from fresh cut oil. Ask for our fully descriptive book.

WM. S. BARNICKEL & CO.

St. Louis, Mo.

Offices and Plant: **Webster Groves, St. Louis Co., Mo.**

Tret-O-lite

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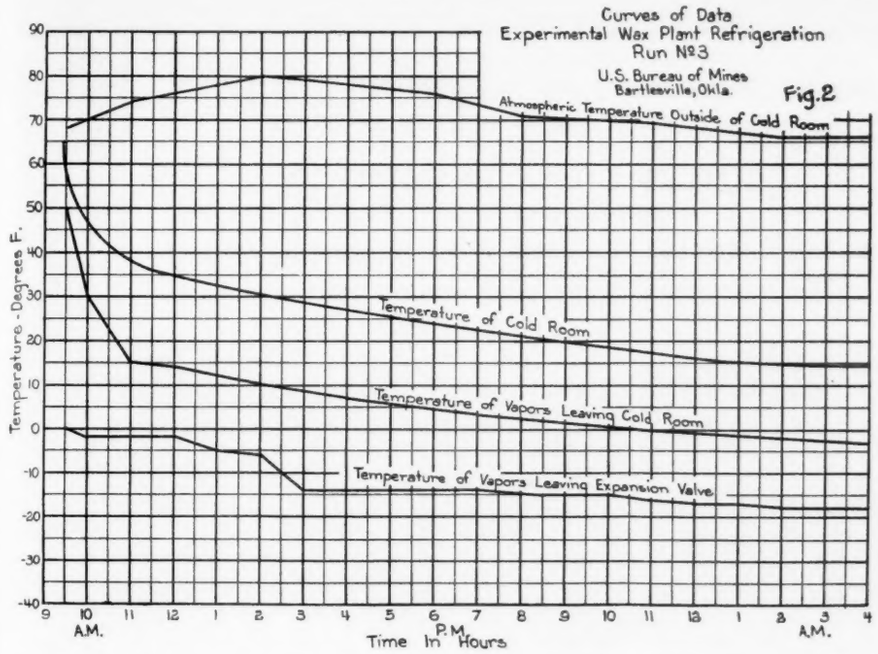
side the cold room. Expansion cooling coil No. 1 is hung from the ceiling of the cold room and is made up of 18 lengths of 1-inch standard pipe, 6 feet 8 inches long, connected by 180-degree return bends. Expansion cooling coil No. 2, placed on the side of the room, consists of nine lengths of 1-inch pipe 7 feet 5 inches long and four pieces of 2-inch pipe of the same length, all connected by 180-degree return bends. These two coils are connected in series. The two sections of the low pressure side marked "X-X" and "M.B" are discussed later.



The system is so set up that the highest point is directly above the lubricating oil trap "B" and the lowest is where the return line connects into the gasoline supply tank "G." By this arrangement any liquid deposited in the piping system has a gravity flow concurrent with the compressed or expanding vapors in the system.

Installation of Meters

In order to collect data on the installation, thermometers were inserted as shown in Figure 1 at points Te, To, and Tm. Two thermometers were also used in the tank containing the water cooled coil "D," one at the inlet and one at the outlet of the cooling water. A gas meter was inserted in the return line at M.B. by arranging valves to form a by-pass. A differential mercury gage was connected to the return line at the point Dg. A pressure-vacuum gage was placed on tank G, a pressure gage and safety pop valve on tank C, and a pressure gage and inclosed safety pop valve were placed inside the cold room at points I and F respectively. A valve was placed in the return line at J and a connection made at K for the purpose of purging the piping system of air when starting.

Source and Quality of Gasoline Used

Three types of volatile gasoline were used in trial runs of this installation.

1. Natural gas gasoline as commercially made (85° A. P. I.)
2. Natural gas gasoline from high stage compressors (90° A. P. I.)
3. High gravity gasoline (93.1° A. P. I.) obtained by compressing the uncondensed still vapors of a low pressure absorption gasoline plant.

The least satisfactory of these was No. 1, the most satisfactory No. 3.

The absorption gasoline plant from which sample 3 was obtained has a total gasoline prouction of 800 gallons per day. The absorption blend is distilled at this plant in a shell type still, the condenser coils of which are under about two-pound gage pressure. The gasoline coming out of the coils has a temperature of about 37° F. The vapors not condensed in this coil are compressed to 100 pounds per square inch, gage pressure, and cooled to approximately 40° F. The gasoline condensed is kept in a closed tank at atmospheric temperature and under 70 to 85 pounds gage pressure. About 100 gallons of this gasoline is produced each day.

The following analyses of this gasoline are given to indicate its character as purchased and after being used. No. 1 is a sample as received from the gasoline plant and charged to the refrigeration system. No. 2 is a sample taken from the refrigeration system after running 27 hours, no additional gasoline being added during the run.

Data On Natural Gas Gasoline Used In Experiment

Sample No. 1

As charged to system.
*Vapor Tension 70°F.—100°F—32 lb.
Sp. Gr. 0.630—93.1° A. P. I.
Color—Water White

Distillation Range

Sample No. 1

F.D.	15°C.	59°F.
10	20	68
20	27	81
30	34	93
40	42	108
50	58	136
60	..	..
70	..	..
80	..	..
90	..	..
E.P.	119°C.	246°F.
Recovery	56%	
Loss	44%	

*Vapor tension by Bureau of Explosives Method Described in M.C.L. 147.

Continued on page 105)

It Pays to Buy a Kellogg

Stands the gaff of heavy-duty service

For heavy duty, high pressure service Kellogg Model EM-722, two stage compressor is IT.

EM-722 will out-pump and out-last any similar two stage unit in existence. It is trouble-proof, fool-proof and there will be no upkeep charges.

Ask us more about this real "he" compressor

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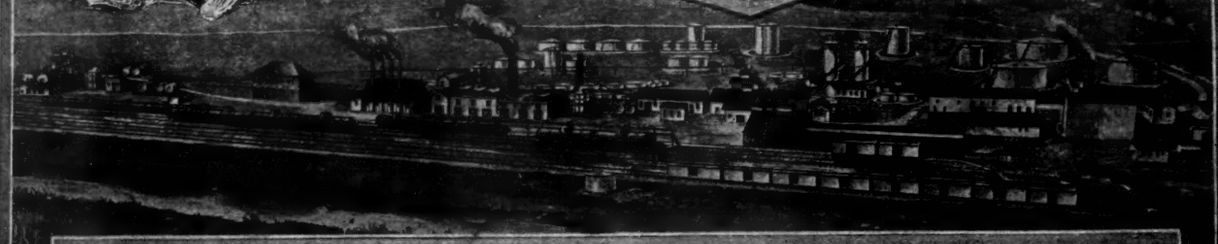
Beyond Compare for Pumping Air

BRUIN PENNSYLVANIA PETROLEUM PRODUCTS

BUTLER COUNTY OIL REFINING COMPANY
Refinery and Wholesale Department, Bruin, Pa.
and
BUTLER OIL SALES COMPANY
Retail Department, Butler, Pa.

BRUIN GASOLINE is a REAL BEAR for starting, power and mileage, and free from carbon and odor. BRUIN LUBRICANTS BRUIN KEROSENE, FUEL OILS and WAXES cannot be excelled.



PRODUCERS REFINING THEIR OWN OIL
PURE PENNSYLVANIA PRODUCTS

ZIRK

Filling The Visible Measure

After trying all others
it did not take him long to see the difference

The J. B. Rhodes Patented Visible Motor Oil Dispensers and Non-Visible Pumps have no equal, bar none, for dispensing oil and alcohol. No filling station is complete without them. They are absolutely guaranteed to give satisfaction. If not, after 30 days trial with any other device on the market, regardless of cost, it can be returned at our expense. Your money will be refunded and no questions asked.

The RHODES Oil Dispensing outfit, consisting of eight visible oil dispensers, metal tray and one Rhodes Non-Visible Barrel Pump for filling oil dispensers, all for **$13.00 Net F. O. B. Kalamazoo, Mich.**

If purchased separately, prices are as follows:

One Rhodes Non-Visible Pump - -	$10.00
One Wood Tray and eight dispensers	$5.50
One Wire Tray and eight dispensers	$ 6.50

F. O. B. Kalamazoo, Mich.

Special discount to jobbers and oil companies

If these goods can not be procured through your dealer, we will ship direct. All we ask is a trial order —we know other orders will follow.

Wood Tray

Goods shipped C. O. D. when cash does not accompany order or parties ordering do not have a commercial rating or can not give credit reference.

Jay B. Rhodes
612-614 Douglas Street, Kalamazoo, Mich.

Wire Tray

As left in tank after runs 2 and 3.

*Vapor Tension 70°F—100°F—18 lbs.
Sp. Gr. 0.635—89.7° A. P. I.
Color—Discolored

Sample No. 2

F.D.	20°C.	68°F.
10	23	73
20	26	79
30	28	82
40	31	88
50	35	95
60	39	102
70	44	110
80	51	120
90	77	171
E.P.	149°C.	300°F.
Recovery	93%	
Loss	7%	

Remarks—Ice and salt mixture used in condenser, maintaining temperature of about 5° F. Receiving flask also kept in ice and salt mixture of approximately the same temperature.

Evaporation Test

A 100-c.c. sample of each of the above gasolines was placed in a 100-c.c. graduated cylinder and suspended in a constant temperature water bath, held at 60° F., and readings were taken every five minutes as the gasoline evaporated.

Data on Evaporation Test

Sample No. 1

Time	Volume, c.c.	Evaporated, c.c.
0	100.0	0.0
5	86.0	14.0
10	83.5	16.5
15	82.3	17.5
20	82.3	17.7
25	82.0	18.0
30	82.0	18.0

Sample No. 2

Time	Volume, c.c.	Evaporated, c.c.
0	100.0	0.0
5	99.7	0.3
10	99.5	0.5
15	99.4	0.6
20	99.3	0.7
25	98.5	1.5
30	98.5	1.5

These samples were left in the constant temperature bath over night, and readings were taken 16 hours after the tests had been started. At this time sample No. 1 had lost 56 per cent of its volume; sample No. 2 had lost 36 per cent.

Operation

After the compressor was started the inlet valve between the supply tank and the intake was opened and the system was then purged of air, using valve J and connection K previously mentioned. Next the needle expansion valve at E was closed and the enclosed pop valve "F" on bypass section X-X was adjusted so it would pop at a pressure slightly above the necessary working pressure. The needle expansion valve E was then adjusted so it would allow practically all the compressed vapors to pass through it, any excess building up and relieving through the enclosed pop valve.

The compressor cylinders were lubricated with castor oil which was fed into the low pressure cylinder and allowed to blow through the high-pressure cylinder and collect in the lubricating oil trap "B". After each run was finished the mixture of castor oil and gasoline was drawn from the trap into an open container and set aside. After 12 hours all the gasoline had evaporated and the castor oil was used again.

Readings were taken on all meters outside the cold room every 15 minutes.

The readings inside the cold room were made every half hour, this necessitating periodic openings of the cold room door. Table 1 gives the experimental data; for convenience only the hourly readings are shown. Between runs No. 1 and 2 the gasoline supply tank was refilled. No gasoline was added between runs No. 2 and No. 3.

The temperature operation curves of run No. 3 are shown graphically by figure 2.

Discussion of Data
Pressures

As the gasoline used is somewhat variable in character no attempt has been made to determine the most efficient working pressures. It was found, however, that when a pressure lower than 120 pounds per square inch was used there seemed to be a considerable volume of vapor that had not been condensed before being expanded. On the other hand, pressures above 120 pounds did not give any noticeable decrease in the expanding temperatures.

No definite connection seemed to exist between the pressure at tank "C" and the pressure at gage "I" directly before expanding. Some of the difference may be due to the fact that the pressure gage on tank "C" was graduated in 10-pound divisions, while gage "I" was a test gage, accurately calibrated in 1-pound divisions.

Temperatures

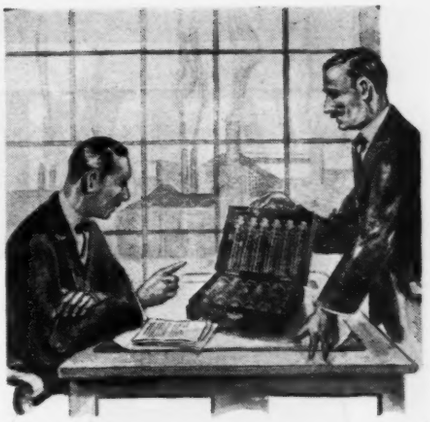
The thermometer placed at Te, (Figure 1) was inserted through a stuffing box directly into the path of the expanding vapors. The two sections of the expanding coil up to this point were insulated with asbestos steam pipe insulation to prevent heat absorption by the expanded vapor before it reached the thermometer. However, this thermometer apparently was not placed so that it would record the lowest temperature of the vapor. Previous to the runs herein shown, several runs were made in which 1½ cubic feet of vapor was delivered and expanded per minute. During this part of the work an expansion temperature as low as—36° F. was occasionally shown by the thermometer placed at Te (Figure 1) and a temperature of from—22° F. to —25° F. was regularly obtained. In the runs shown in this paper when an average volume of 7.05 cubic feet per minute was being expanded, the coldest place in the coils was probably not at or near the thermometer, Te, but in the third or fourth pipe of the coil, as these two pipes regularly gathered more frost and were apparently colder than either the preceding or following pipes.

The temperature of vapors going out of the cold room was taken at "To" (Figure 1). The thermometer at this point was set in a thermometer well made of ¼-inch standard pipe. This well was filled with light lubricating oil and the thermometer inserted. These conditions seemed to cause a lag of from 1° to 2° F. as compared to the thermometer at "m", which was 4 feet outside the cold room but was set through a stuffing box directly in the path of the vapors.

Consumption of Gasoline

Owing to the worn condition of the compressor, a considerable amount of gasoline was lost and the amount actually used as a refrigerant is smaller than is shown in these experiments. At the beginning of run No. 2, there was put into the gasoline supply tank 24.8 gallons of gasoline. Runs No. 2 and 3 were both made without adding

*Vapor tension by Bureau of Explosives Method Described in M. C. L. 147.



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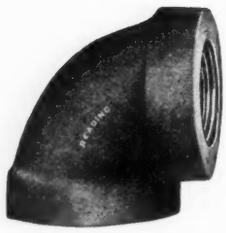

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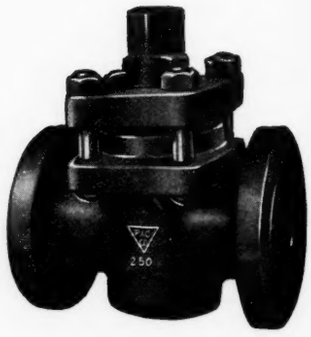

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additional gasoline. After the two runs were finished 21.1 gallons were left in the supply tank. The loss (3.6 gallons) of gasoline is equivalent to approximately 19.5 pounds of gasoline vapors.

The likelihood of an explosion or fire due to leakage of vapors is small, even with a leakage of 4 gallons in 27 hours, if the room is fairly well ventilated. According to Burrell and Boyd* a mixture of at least 1.5 per cent gasoline vapors in air is necessary before the mixture is sufficiently rich in gasoline to support its own combustion or flame propagation. A mixture of most explosive proportions contains 2.6 to 2.8 per cent of gasoline vapors. The room in which this installation is set up contains 4320 cubic feet; hence 2.16 gallons would be needed at any one time to so contaminate the air that the mixture would support combustion.

During the two runs in which the 3.6 gallons of gasoline was used, no gasoline odor was noticeable. Had this amount of ammonia leaked out of an ammonia system the air would have been so contaminated that no one could have worked near the installation, as it is generally admitted that 0.5 per cent of ammonia is decidedly dangerous.

The capacity of the whole system, excluding the gasoline supply tank, is a little less than 3½ cubic feet. Hence in starting the apparatus five cubic feet was exhausted before the system was closed in. The capacity of the expanding coils is 1.68 cubic feet and the average volume of vapors expanded through the coils in the three runs herein presented was 7.05 cubic feet per minute. Therefore, the time required for the vapors to go from the expansion valve to the meter was only 14¼ seconds. This is evidently too rapid for the most efficient utilization of the expanded vapor in this installation. If brine were circulated around the coils the cooling area would probably be sufficient. The expansion coils could well be made of not less than 2-inch pipe and should be longer than the 1-inch coils used in this set-up. This would decrease the velocity and pressure in the coils, allowing a quicker expansion of the vapors together with a longer through period, thereby further increasing the efficiency of the plant.

The data contained in this report show that with the equipment as installed and using volatile gasoline as a refrigerating medium a sufficient amount of refrigeration is easily obtainable for the purposes required. The minimum working temperatures of 14° F. to 16° F. in the cold room are more than sufficiently low for ordinary cold storage purposes. The expansion temperatures of from —22° to —36° F. are low enough to extend the uses of this refrigerating medium over a wide range. It is believed that use of volatile natural gasoline as a refrigerating medium will be found convenient, useful and economical in many instances.

*Burrell, G. A., and Boyd, H. T., Inflammability of mixture of gasoline vapor and air, Tech. Paper 115, Bureau of Mines, 1915.

Do you make a practice of reading the "Oil Industry Exchange" page each week? Don't miss it—you will find a great many interesting items there in every issue.

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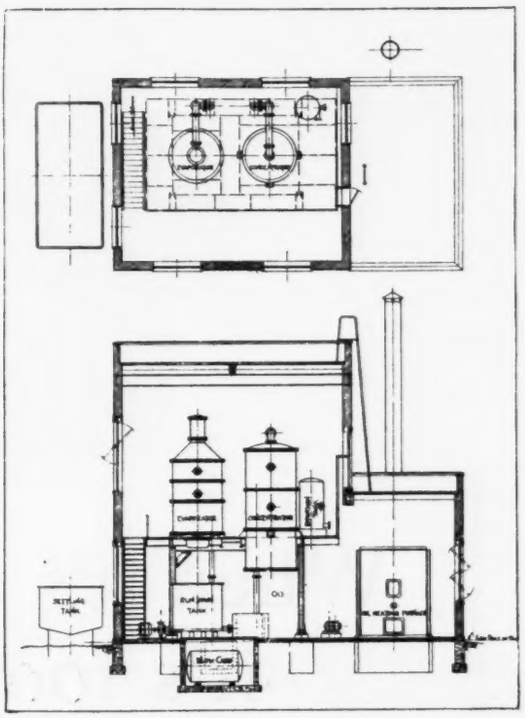

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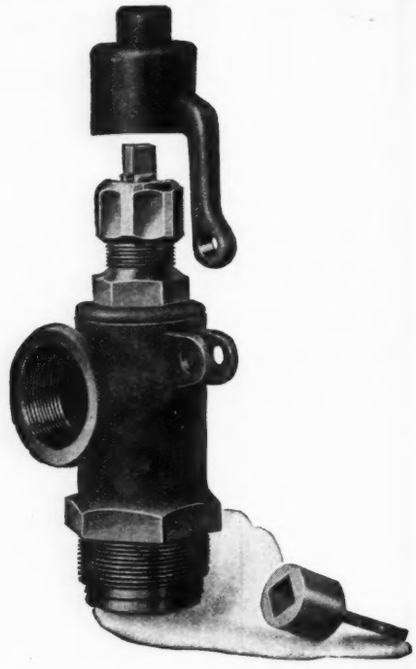

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Industrial Notes

Associated Supply Co., Sharon building, San Francisco, is offering a meter for gasoline and other refined products which is the result of three years experimental work, it announces. It is called the Granberg meter.

The meter is made in 1, 1½, 2, 3 and 4-inch sizes. The 1½-inch meter is designed primarily for installation on the rear of trucks delivering gasoline, distillate, kerosene and other refined oils. It measures the flow in gallons by gravity as it is being delivered to the quantity buying customer. The last gallon of the load is measured with the same accuracy as the first, the manufacturers say. It is claimed that in continued service the Granberg meter, under varying conditions of discharge, erred considerably less than tolerances allowed by sealers of weights and measures. The manufacturers set up the following claims for it:

"1.—The Granberg is absolutely a positive flow meter. There is no by-pass or changing of gear ratios.

"2.—The materials which are used in the manufacture assure a long life of service. The main castings are made of a special bronze alloy. The valve and guide are of an aluminum alloy. All other parts are die cast or machined from special metals known to withstand the action subjected to. In this connection attention is invited to the fact that parts of the meter of the same pipe size are interchangeable in the event of accidents which necessitate the replacing of damaged or broken parts.

"3.—Casting, machine and lathe work on this meter is accomplished by most up-to-date methods with latest improved machinery under supervision of expert workmen.

"4.—Special methods of inspection before and after the machining of the parts, also during the assembly, provide for the highest degree of perfection. Every Granberg meter is adjustable; is tested and set at thhe factory before shipment. tion that is found necessary can be easily and quickly made."

Any additional adjustment after installation that is found necessary can be easily and quickly made."

Bridgeport Machine Co., Wichita, Kan., has issued a new catalog covering Swan underreamers, oil well drilling and fishing tools and the company's rental tool service. The catalog contains descriptions and prices of all tools. The company announces it recently combined its Swan underreamer plant which formerly was at Marietta with the general shops which are at Wichita which enables it to triple its capacity. The catalog has a heavy cloth and board back and the leaves are loose so that additions may be made from time to time as the company, in keeping with its policy, expands its line of oil well tools.

Celite Products Co., 11 Broadway, New York, has adopted a new trade mark for its various products, which aims to tie together their common purpose—that of preventing industrial waste. The mark is in the form of a shield with a medieval wall across the top. Between the towers of the wall are the words, "Celite Products" and across the face of the wall, "Barriers to Industrial Waste." Below the wall are listed the names of the four chief products and a phrase telling what they are, "Sil-O-Cel, heat insulation"; "Filter-Cel, for filtration"; "Celcote, boiler wall coating," and "Fraxite, high temperature cements."

S. F. Bowser & Co., Inc., Fort Wayne, Ind., is distributing among the oil trade a booklet on the founding and growth of the company which is co-incident with the history of the development of the self-measuring oil pump. The booklet was published in celebration of the 1,000,000th self-measuring pump put out by the Bowser company early in the summer.

The booklet contains a short biography of Mr. Bowser who conceived the idea of a self-measuring pump while he was traveling about Indiana selling paper and tinware. The incident which set his thoughts to working along that line was that he nearly froze his hand when drawing water from a well by means of a pail and a long ice coated rope.

Pictures of the first pump and tank, the early factory, the first customer, who is still living in Fort Wayne and of the modern, large factory and office buildings are shown.

Reliance Electric & Engineering Co., Cleveland, O., recently published a bulletin No. 5018, describing its two and three phase AC circuit motors, which are rated from ½ to 25 H.P.

Cities Service Co. has published a well illustrated booklet concerning its operations in the public utility as well as in the oil and gas industry. It also sets forth the Henry L. Doherty policies.

United States Air Compressor Co. 952 E. 72nd street, Cleveland, has added a heavy duty compressor to its Usaco line. According to the manufacturer the new compressor is compact, sturdy in design and quiet in operation, and especially adapted to the operation of gasoline dispensers.

This compressor is made either two-stage or single-stage and in ful'y automatic units or simple compressors. Both the fully automatic and simple types have displacements of from 8 to 20 cu., feet per minute. Some of the features set forth are:

Water cooled—Automatic units amply cooled by thermo syphon principle using circulating water from a 30 gallon galvanized iron tank. Simple compressors cooled by circulating water or thermo-syphon principle from tank provided by purchaser.

Usaco air pressure release in conjunction with automatic contro'ler permits equipment to start against no pressure.

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Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of **National Petroleum News,** published weekly at Cleveland, Ohio, for Oct. 1, 1923, State of Ohio, County of Cuyahoga.

Before me, a notary public in and for the State and County aforesaid, personally appeared A. W. Brobst, who, having been duly sworn according to law, deposes and says that he is the secretary of The National Petroleum Publishing Company and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are; Publisher, The National Petroleum Publishing Company, Cleveland, Ohio; editor, Warren C. Platt, Clevelanl, Ohio, managing editor, V. B. Guthrie, Cleveland, Ohio; business managers, none.

2. That the owners are: Warren C. Platt, Cleveland, Ohio; Bess H. Platt, Cleveland, Ohio; V. B. Guthrie, Cleveland, Ohio; A. W. Brobst, Cleveland, Ohio; Wm. H. Little, Tulsa, Oklahoma.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders anl security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only).

(Signed) A. W. BROBST,
Secretary.

Sworn to and subscribed before me this 19th day of Sept., 1923.

(Signed) H. W. SLACK,
Notary Public.

(My commission expires 1-8-26.)

REFINERY-TANK WAGON MARKETS

Mid-Continent Gasoline Remains Firm; Movement Is Heavy

(Complete Refinery Prices pp. 115-117)

FOR the third week in succession gasoline markets in the Mid-Continent have shown no weakness. September is closing with motor fuels virtually at the level of quotations prevalent at the opening of the month.

While there has been some tendency toward higher prices as evidenced by the increase to 7 cents on the part of a number of refiners the entire market has not mustered sufficient strength to step up. New business reaching the field this week has been somewhat smaller in volume than that written earlier in the month. Nearly all refiners had sufficient orders on their books, however, to keep the rate of movement considerably above normal for this time of year.

The heavy rate of movement has been the big factor in keeping markets firm. For future delivery there is an undertone of weakness in gasolines which is giving refiners some concern. Jobbers generally are not inquiring for quotations over the month. Those who have been in the market have had the idea that they should be able to buy Navy at 6 and 6¼ cents over October.

Some refiners have felt that the market may be stagnant during October with the possibility of an early fall and the fact that business may be slowed down by the many conventions where jobbers and refiners will congregate to exchange ideas. While there is often considerable business activity as conventions it is thought by many that jobbers have not made up their minds as to the probable course of the market and will expect to reserve their decision until after the conventions are over and they have had an opportunity of sizing up the situation more thoroughly.

Not Sold on Market Strength

Returning from a three weeks' trip through Standard of Indiana marketing territory yesterday, the sales manager of one important refining unit in the Mid-Continent observed that jobbers generally were not sold on the idea of the possibility of markets strengthening for several months. He found that jobbers' storage was low at virtually all points where he visited. They were buying for current needs only.

In his conversation with the trade the sales manager found that a large number of jobbers expect to continue their hand to mouth purchases until the end of the year and then fill up their storage to care for 1924 business. They can see no reason why Group 3 prices should not decline further or at least not advance with winter nearing.

One jobber with a large storage capacity was in Oklahoma this week to look around. He said his plan would be to buy a few cars of gasoline for storage each week from now on until the middle of the winter. If the market should go down he will not have a large inventory on hand and his tanks full so that he cannot take advantage of the drop. If it should go up he will be partly protected with cheap storage.

Although they may disagree as to what is the proper time to fill their tanks there appears to be general belief among the jobbers that storage in distributor tanks should be filled to the brim before the 1924 motoring season opens. They look for a low rate of refinery operations during the winter and probable sharp advances at the beginning of demand. They seem to be aware that refiners will not be in a position to build up huge reserves of gasoline this winter like they did a year ago.

Unable to Store Heavily

This opinion among the jobbers is in itself a hopeful factor for the Mid-Continent market structure. Generally speaking it is true that Group 3 refiners will be unable on account of finances to store heavily this winter. Many are obligated to run at least some crude, particularly those with their own production. If the jobbers fill their storage during the winter with some consistency their purchases may be sufficient to absorb the production which refiners will have to move as it comes from the stills.

If jobbers as a whole stay out of the market and buy only what they are able to sell, the refiners with gasoline which must be moved will probably be compelled to start lowering prices again.

With the raising of its price on Navy to 7 cents by Cosden & Co. and the fact that a number of other refiners with large stocks are quoting prices above the current market today, it seems probable that these concerns have made arrangements to carry over their stocks until next year and need not be considered in judging the spot market.

Opinions on Crude Changing

There has been a marked change of sentiment regarding crude in the Mid-Continent within the past week. Belief is becoming prevalent that none of the large purchasers will begin storing oil until about the first of the year or possibly a little later. An estimate of the empty storage held by the Prairie Oil & Gas Co. as published in **National Petroleum News** last week indicated that it had but 8,000,000 barrels of room on Aug. 1. The same estimate showed Sinclair with only a little over 1,000,000 barrels of room.

With the possibility that deliveries to eastern purchasers may not pick up soon it is doubted by some factors that the major crude purchasers will be inclined to fill up any of their empty storage until the situation clears.

Premium motor fuels have been in better demand in the Mid-Continent during the past week as cooler weather has been experienced in the north. There has been some scarcity of 60-62 and 64-66 has been tighter. It is becoming increasingly difficult to buy 60-62 at 8 cents a gallon. The bulk of the product is now moving at 8¼-8½ with a cent more being gotten on 64.

The competition of the New Orleans group has been felt on 60-62 as much or more than it has been on Navy recently. It is reported that 60 gasoline at New Orleans is offered at ½ cent over Navy as compared with the usual differential of 1½ to 2 cents in the Mid-Continent.

New Orleans is reported offering Navy to the trade in Indiana territory at 6¾ cents f. o. b. New Orleans for October. That price will permit the delivery of the gasoline in Indiana, Ohio and surrounding states at a considerable advantage over a 6½ or 6¾ cent price in Group 3 or north Texas because of the more advantageous freight rates.

Natural Gasolines Climbing

All grades of natural gasoline have been active this week for both spot and future delivery. Buyers, particularly those in the east, have been bidding prices up in order to get car numbers. The price of Grade A is up to 7¾ cents a gallon with isolated sales for immediate delivery reported at 8 cents. Grade B is almost on a par with Grade A. Little is available at 7½ cents and the bulk is moving at around 7¾. Compression grades are up nearly ½ cent over last week's level. It is impossible to buy under 7½ cents today.

Higher gravity blends have been somewhat more active on inquiries from northern states. Sales are being made at around 7 cents.

Kerosene has remained firm and scarce during the week. Movement has been good but there have been no additional price advances.

Distillates for home heating have held the center of the stage with another advance in price. Jobbers throughout Indiana territory have been in the market for both spot shipments and contracts for delivery over the winter months. The market on 38-40 light straw distillate is 3 and 3¼ cents with little available now at the former figure. On deliveries over the winter a minimum of 3½ cents is being asked.

Distillate a Problem

Some refiners are considering methods of widening the distillate cut to take care of the demand. That is difficult to accomplish without narrowing the kerosene cut which is undesirable in view of the fact that there is an excellent prospect for advancing prices on that commodity as well. The big demand is for the 38-40 distillate rather than for 36-38 so that it will be hard for a refiner to reach down into the gas oil to get more distillate.

In a number of marketing points it is reported that major companies are

(Concluded on page 121)

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OLD timers say this is going to be a long cold winter. That means zero cold test lubes will be in the spot light for many months.

Instead of scouring the country by wire and letter for the Western and Pennsylvania neutrals you want, ask Berry's Sons.

Berry's Sons focus the resources of the best sources of supply for zero cold test, Western and Pennsylvania lubricating products so you can get the best of these products when you want them at the market's right price.

Send your lubricating oil inquiry to Berry's Sons to-day

JAMES B. BERRY'S SONS COMPANY

REFINERS and WHOLESALERS
PETROLEUM PRODUCTS

Oil City, Pa.-Chicago-New York-Boston-Philadelphia-Tulsa-London, Eng.

Refinery Markets On Light Oil Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas

FOLLOWING are the average market prices on the more important petroleum products in cents per gallon f. o. b. in Oklahoma, Texas refinery and Pennsylvania. These are actual prices at which the bulk of each product is moving from the refineries at the present time. Anyone having knowledge of different prices which have obtained on any considerable quantity of any of the products mentioned will greatly favor us by advising us at once.

GASOLINE AND NAPTHA

PENNSYLVANIA	Prices Oct. 1	Prices Sept. 24	Prices Sept. 17
50-52 Naptha	10¾-11	11 -11¼	10¾-11¼
54 Naptha	11 -11½	11½-11¾	11½-11¾
58 Gasoline	11¾-12	12 -12¼	12 -12½
60 Straight-run gasoline	12¾-13	12½-13	13 -13½
62 Straight-run gasoline	13½-14	13¾-14¼	14 -14½
64 Straight-run gasoline	14¼-15	14¼-15	-15
68 Straight-run gasoline	17 -18	17½-18½	17½-18½
68-70 Blend, 450 E. P	10¾-10½	11 -11¼	11 -11¼
60-62 Blend, 450 E. P	10½-10¾	11 -11¼	11 -11¼
62-64 Blend, 450 E. P	10½-10¾	11 -11¼	11 -11¼
66-68 Blend, 440 E. P	10½-10¾	11¼-11½	11¼-11½
68-70 Blend, 440 E. P	10½-10¾	11¼-11½	11¼-11½
68-70 Blend, 420 E. P	11 -11½	-11¾	11¾-12
OKLAHOMA			
48-50 450 E. P. naptha	6 - 6¼	6 - 6¼	6 - 6¼
50-52 450 E. P. naptha	6 - 6½	6 - 6½	6 - 6½
56-58 450 E. P. gasoline	6 - 6½	6 - 6½	6 - 6½
55-57 (New Navy), 437 E.P.131i.b.p	6¼- 6½	6¼- 6½	6¼- 6½
58-60 (New Navy),437 E.P.131i.b.p.	6½- 6¾	6½- 6¾	6½- 6¾
60-62 400 E. P. gasoline	8¼- 8½	8 - 8½	8 - 8½
64-66 375 E. P. gasoline	9¼- 9½	9 - 9½	9 - 9½
68-70 350 E. P. gasoline	10½-11	10½-11	10½-11
NORTH TEXAS			
48-52 450 E. P. naptha	6 - 6½	6 - 6½	6½- 7
56-58 450 E. P. gasoline	6 - 6½	6 - 6½	6¼- 6½
56-58 New Navy gasoline	6¼- 6½	6¼- 6½	6¼- 6½
58-60 New Navy gasoline	6¾- 6¾	6¾- 6¾	6¼- 6¾
60-62 400 E. P. gasoline	7¾- 8¼	7¾- 8¼	8 - 8¼
64-66 390 E. P. gasoline	8½- 9	8½- 9	8¾- 9¼
64-66 375 E. P. gasoline	8¾- 9¼	8¾- 9¼	9 - 9½
LOUISIANA-ARKANSAS			
51-53 460 E. P. naptha	6¼- 6¾	6¼- 6¾	6½- 7
56-58 450 E. P. gasoline	6¼- 6¾	6¼- 6¾	6½- 7
58-60 437 E. P. New Navy Gasoline	6¾- 7	6¾- 7¼	7 - 7¼
64-66 400 E. P. Gasoline	8¼- 8¾	8¼- 8¾	8½- 9

NATURAL GASOLINE

OKLAHOMA	Prices Oct. 1	Prices Sept. 24	Prices Sept. 17
Grade A, 72-78 375 E. P., 90% Rec	- 7¾	7¾- 7¾	7¼- 7½
Grade B, 76-82 375 E. P., 85% Rec.	7½- 7¾	7¼- 7½	7 - 7¼
Grade C, 80-88 350 E. P., 78% Rec.	- 7½	7 - 7¼	7 - 7¼
Grade D, 88-92 350 E. P.	- 7½	7 - 7¼	7 - 7¼
(Motor Natural Gasoline—Blends)			
Grade 1, 58-62 437 E.P., 91% Rec..	6½- 6¾	6½- 6¾	6 - 6½
Grade 2, 58-62 450 E.P., 90% Rec..	6½- 6¾	6½- 6¾	6 - 6½
Grade 3, 66-64 440 E.P., 88% Rec..	6¾- 7	6¾- 7	6 - 6½
Grade 4, 66-70 435 E.P., 85% Rec..	6¾- 7	6¾- 7	6 - 6½
NORTH TEXAS			
Grade A, 72-78 Absorption	7½- 7¾	7¼- 7¾	7 - 7½
Grade C, 80-88 Compression	7¼- 7½	7 - 7¼	7 - 7¼
(Motor Natural Gasoline—Blends)			
Grade 1, 58-62 437 E. P.	6¼- 6¾	6¼- 6¾	6¼- 6¾
Grade 2, 58-62 450 E. P.	6¼- 6¾	6¼- 6¾	6¼- 6¾

BURNING OILS

PENNSYLVANIA			
45 Water White	6¾- 7	6½- 7	6¼- 6½
46 Water White	- 7½	7 - 7¼	- 7
47 Water White	7¾- 8¼	7¾- 8	7¾- 8
300 Burning Oil	7½- 7¾	7 - 7½	7 - 7½
OKLAHOMA			
41-43 Water White	3¾- 4½	3¾- 4½	3¾- 4
42-43 Water White	4 - 4¼	4¼- 4¾	4 - 4¼
45-47 Distillate 520 E. P.	5½- 6	5½- 6	5½- 6
46-48 Distillate 500 E. P.	6 - 6½	6 - 6¼	6 - 6½
NORTH TEXAS			
40-42 Prime White Distillate	3½- 3¾	3½- 3½	3½- 3¾
41-43 Water White Kerosene	3¾- 4	3¾- 4	3¾- 4
LOUISIANA-ARKANSAS			
41-43 Water White Kerosene	4 - 4¼	4 - 4¼	3¾- 4

(Prices of Lubricants and Heavy Oils are on page 117)

Demand For Gasoline Diminishes As Winter Draws Near

CHICAGO, Sept. 29.—A falling off in the number of inquiries from jobbers was the feature of the gasoline market over Standard Oil Co. of Indiana territory this week. Reports were the same at most refinery offices. As usual at this time of year, less gasoline is being consumed in the northern states. Freezing temperatures have been felt in states bordering Canada, which throws a damper on the after-dark joy riding of summer. Tourists from the south have turned their radiators toward home and rains have hurt rural motoring in regions not well supplied with hard roads.

Business was being done in Chicago on Navy gasoline at 7 cents in car lots, during the last three days of the week. When Taxman Refining Co., marketing agency of Cosden & Co., announced an advance in gasoline to 7 cents, a few other Group 3 refiners fell in line. The advance was ragged, some appearing reluctant to change their price sheets. Navy at 6½ cents could be bought in several quarters as late as Saturday forenoon.

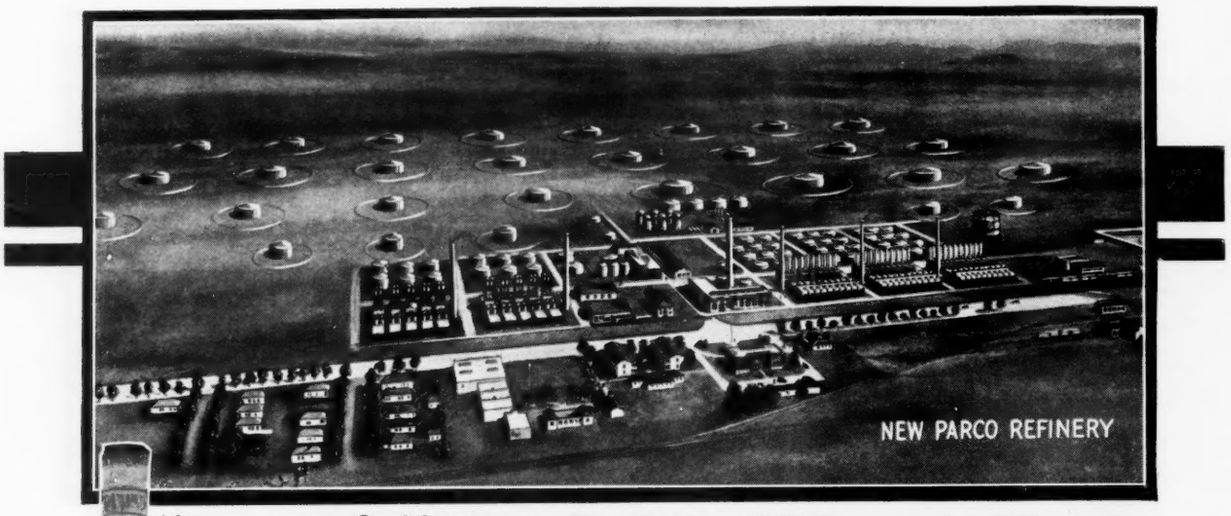
Dealers quoting 7 cents say they can do as much business at that figure as at a lower one. It is taken for granted that such plants have disposed of a great deal of their surplus, while they were partly or completely shut down, and now they do not care to make gasoline at a loss and refuse to manufacture more than enough to meet contract requirements until better prices prevail. Plants competing for business at 6½ cents probably have some stocks they would like to move before winter sets in.

Persons in close touch with the market agree that the acute situation in gasoline has passed, (in view of the believed falling off of California production) but they also point out that the season has passed also. In the place of the gasoline demand, has come the annual call for fuel which last year took the form of a scramble for straw distillate. Household fuel is more in demand this year than last, but at lower prices. Fuel for domestic burners can be had as cheap as 2¾ cents but that grade is not preferred. The prettier product 3¼ cents is more in demand with the consumer, and therefore more active on the wholesale market.

Kerosene has developed some strength in the last few days, but even in that commodity the price has not advanced. Business still is being done at prices ranging around 4 cents where it has been for a matter of months. The renewed demand is generally being attributed to fall plowing. Jobbers in outlying districts are the ones buying most freely, and they are demanding quality. Profit has been good enough all season in kerosene and the tank wagon price has not changed in Indiana territory in nearly 15 months, so prices do not enter much into the merchandising of it. The jobber who talks quality to his farmer customers gets the business as a rule.

Gas oil has become reasonably active in some quarters but the price has not advanced. Nearly all of the business is being done between 2¼ and 2½ cents. There is not much logic to be figured into the list of prices on the heavier ends of petroleum this season. Fuel oil of 24-26 gravity is the product most out of line. The common quotation on it in the Chicago market is 85 cents, but that figure can probably be shaded at most any Group 3 plant. Gravity does not appear to enter into the making of prices, however, because fuel oil of 18-20 gravity is selling at about $1.05 a barrel on a basis of heat units while gas oil does well to bring that price (2½ cents gal.). On the other hand straight reduced 24-26 fuel is 15 cents under the other two products.

CHICAGO, Sept. 27.—Effective Oct. 1, A. F. Buck is a part of the sales organization of the Henry H. Cross Co., 122 South Michigan avenue, Chicago. Mr. Buck was formerly in the tank car sales department of the Sinclair Refining Co. He left the Sinclair interests about two weeks ago and took a vacation before taking up his duties with the Cross organization.

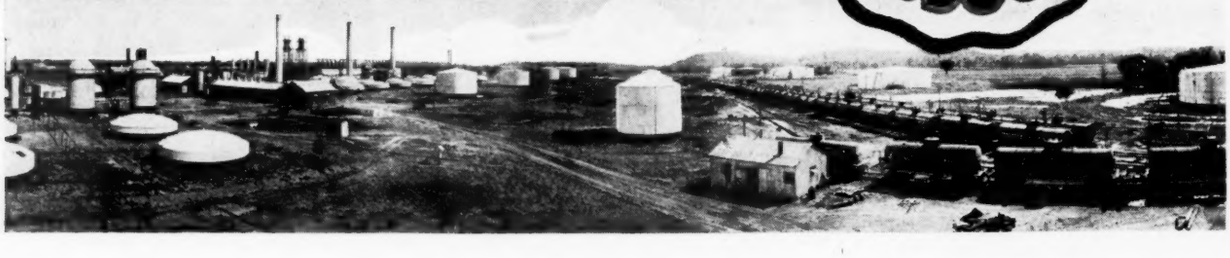


"P&R's" PARCO, West Tulsa and Blackwell Refineries

VIEWS AT WEST TULSA REFINERY

AGITATORS, BLACKWELL REFINERY

WEST TULSA REFINERY



Now Operating at Capacity on "P & R" Crude

Since the completion in September of two final links in "P & R" pipe line systems our three refineries at Parco, Wyoming, West Tulsa, and Blackwell, have been operating at full capacity—10,000 bbls., 10,000 bbls., and 3,000 bbls. respectively — on crude produced *exclusively* by "P & R" wells and piped *exclusively* in "P & R" pipe lines.

The pipe line completions above referred to consist of a 30-mile line from the Wewoka Field connecting with our line from the Lyons Pool to West Tulsa, and the final section of our 163-mile line from Salt Creek to Parco, in Wyoming. These additions increase the total mileage of Producers and Refiners Corporation pipe lines to 464.

Write nearest office for quotations on PARCO oils.

Producers and Refiners Corporation

Denver Chicago Tulsa Casper Parco

PARCO PETROLEUM PRODUCTS

Refinery Markets On Lubricants, Heavy Oils

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas

FOLLOWING are the average market prices on the more important petroleum products in cents per gallon f. o. b. in Oklahoma, Texas refinery and Pennsylvania. These are actual prices at which the bulk of each product is moving from the refineries at the present time. Anyone having knowledge of different prices which have obtained on any considerable quantity of any of the products mentioned will greatly favor us by advising us at once.

CYLINDER OILS

PENNSYLVANIA	Prices Oct. 1	Prices Sept. 24	Prices Sept. 17
600 Steam Refined	10½–11	10 –10½	9½–10
635 Steam Refined	–12½	–12	11½–12
650 Steam Refined	13 –13½	–13	12½–13
600 Flash	–16	15½–16	–16
600 Warren E	15¾–16	15¾–16	15 –16
600 Oil City E	–14	13¾–14	–13½
600 Filtered D	20 –21	20– 21	20 –21
Cold Test Stocks (bright filtered)	33 –34	33– 34	33 –34
Cold Tests Stocks (dark filtered)	31 –32	30 –31	30 –31
Black Oil	–	– 6¼	– 6¼
OKLAHOMA			
Bright Filtered Stock	26 –33	26 –33	26 –29
Medium Filtered Stock	–17	–17	16 –17
600 Steamed Refined Olive Green	5½– 6½	5½– 6½	8 – 9
600 Steam Refined Dark Green	4½– 5½	4½– 5½	6½– 7
Black Oil	3½– 3¾	3½– 3¾	4¼– 5

WAX

PENNSYLVANIA (Per Pound New York)			
122-124 White Crude Scale	– 3	– 3	– 3
124-126 White Crude Scale	– 3¼	– 3¼	3⅛– 3¼
OKLAHOMA (Per Pound Group 3)			
124-126 White Crude Scale	2⅝– 2¾	2⅝– 2¾	2½– 2⅝

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	5½– 6	5½– 5¾	5¼– 5½
30-34 Fuel Oil	– 5¼	– 5¼	– 5
OKLAHOMA			
38-40 Straw Distillate	3 – 3¼	2¾– 3⅛	2¾– 3
36-38 Straw Distillate	2¾– 3	2⅝– 2⅞	2⅝– 2¾
32-36 Gas Oil (Gal.)	2¾– 2½	2⅝– 2½	2⅜– 2½
24-26 Fuel Oil (bbl.)	82½–.87½	.85– .90	82½–87½
Fuel Oil, buyers, cars (bbl.)	.80–.85	82½–.87½	82½–.87½
Road Oils 50-60 Asphaltic Content	1.00–1.10	1.00–1.10	1.00–1.10
Road Oils 60-70 Asphaltic Content	1.10–1.20	1.10–1.20	1.10–1.20
NORTH TEXAS			
38-40 Straw Distillate	3 – 3¼	2¾– 3	2½– 2¾
32-36 Gas Oil (gal.)	2¼– 2½	2¼– 2½	2¾– 2½
24-26 Fuel, per bbl	.75–.80	77½–.82½	.80–.90
South Texas Fuel	1.15–1.25	1.15–1.25	1.15–1.25
South Texas Gas Oil	3 – 3½	3 – 3½	3½– 3¾
LOUISIANA-ARKANSAS			
34-36 Gas Oil (Gal.)	2¾– 3	2½– 2¾	2¾– 3
24-26 Fuel Oil (bbl.)	.80– .85	.80– .85	.80– .85

NEUTRAL OILS

PENNSYLVANIA	Prices Oct. 1	Prices Sept. 24	Prices Sept. 17
(Viscous Test 70)			
200 Vis. No.3 Assoc. Filt	26½–27	26½–27	27 –28
180 Vis. No.3 Assoc. Filt	24½–25	24 –25	25 –26
150 Vis. No.3 Assoc. Filt	21½–22	21 –22	22 –23
(Non-Viscous)			
34 350–360 Flash	7½– 8	7½– 8	7½– 8
36 Miners Neutrals 300-305 Flash	7 – 7½	7 – 7½	7 – 7½
OKLAHOMA			
(Viscous Test 100)			
70 Vis. at 100°F. No. 2 color	4¼– 4½	4¼– 4½	4¼– 4½
70 Vis. at 100°F. No. 2½-3 color	4 – 4¼	4 – 4¼	4 – 4¼
100 Vis. at 100°F. No. 2 color	5 – 5½	5 – 5½	5¼– 5½
100 Vis. at 100°F. No. 2½-3 color	4¾– 5	4¾– 5	4¾– 5¼
150 Vis. at 100°F. No. 3 color	11½–12	11½–12	
150 Vis. at 100°F. No. 4 color	11 –11½	11 –11½	
180 Vis. at 100°F. No. 3 color	14 –14½	14 –14½	
180 Vis. at 100°F. No. 4 color	13¼–13¾	13¼–13¾	
180 Vis. at 100°F. No. 5 color	12½–13	12½–13	
180 Vis. at 100°F. No. 6 color	11¾–12¼	11¾–12¼	
200 Vis. at 100°F. No. 3 color	15 –15½	15 –15½	12¾–13¼
200 Vis. at 100°F. No. 4 color	14¼–14¾	14¼–14¾	
200 Vis. at 100°F. No. 5 color	13½–14	13½–14	11¼–11¾
200 Vis. at 100°F. No. 6 color	12¾–13¼	12¾–13¼	
220 Vis. at 100°F. No. 3 color	16 –16½	16 –16½	
220 Vis. at 100°F. No. 4 color	15¼–15¾	15¼–15¾	
220 Vis. at 100°F. No. 5 color	14½–15	14½–15	
220 Vis. at 100°F. No. 6 color	13¾–14¼	13¾–14¼	
240 Vis. at 100°F. No. 3 color	17 –17½	17 –17½	14½–15
240 Vis. at 100°F. No. 4 color	16¼–16¾	16¼–16¾	
240 Vis. at 100°F. No. 5 color	15½–16	15½–16	13¼–13½
240 Vis. at 100°F. No. 6 color	14¾–15¼	14¾–15¼	
280 Vis. at 100°F. No. 3 color	19½–20	19½–20	
280 Vis. at 100°F. No. 4 color	18½–19	18½–19	16½–17
280 Vis. at 100°F. No. 5 color	17½–18	17½–18	
280 Vis. at 100°F. No. 6 color	16½–17	16½–17	
300 Vis. at 100°F. No. 6 color	17 –20	17 –20	16¾–17¼
SOUTH TEXAS			
(Viscous Test 100; cold test 0)			
100 Vis. No.2 Color Unfilt. Pale	6 – 7	6 – 7	6 – 7
150 Vis. No.2½ Color Unfilt. Pale	9 –10	9 –10	9 –10
200 Vis. No.3 Color Unfilt. Pale	10 –11	10 –11	9½–10½
300 Vis. No.3 Color Unfilt. Pale	13 –14	13 –14	13 –14
500 Vis. No.3½ Color Unfilt. Pale	15 –16	15 –16	15 –16
750 Vis. No.4 Color Unfilt. Pale	22 –23	22 –23	22 –23
200 Vis. No. 2 Filt. Pale	–22	–22	–22
300 Vis. No. 2 Color Filt. Pale	–24	–24	–24
500 Vis. No. 2½ Color Filt. Pale	–28	–28	–28
750 Vis. No. 2½ Color Filt. Pale	–37	–37	–37
200 Vis. No. 5½ Color Red Oil	9 –10	9 –10	9 –10
300 Vis. No. 5½ Color Red Oil	11 –12	11 –12	11 –12
500 Vis. No. 6 Color Red Oil	13½–15	13½–15	13½–15
750 Vis. No. 6 Color Red Oil	19½–20	19½–20	19½–20

Pennsylvania Prices Firm; Runs To Stills Increased

(Complete Refinery prices, pp. 115-117)

CLEVELAND, Oct. 1.—Low stocks with steady demand have held prices for most western Pennsylvania products on a firm basis during the week. Prices of a few grades of gasoline have made fractional declines but kerosene and fuel oil are stronger. Prices of steam refined stocks are also higher as there is a good demand for both domestic and export trade.

The improved demand for stocks has led to increased runs of crude by refiners who have been operating at a curtailed rate during the summer when competition with cheaper Mid-Continent and California gasoline was keener than it is at present.

Others who had taken advantage of the period of depressed markets to reconstruct their stills and plants, are rushing completion of this work in order to take advantage of the improved market for lubricating oils.

Some refiners believe the turning point has come so far as western Pennsylvania refiners are concerned. Crude oil has been reduced to a point where it balances better with the value of refined products. They also see a better winter demand for motor oils because of the greater number of enclosed automobiles in service.

A few refiners report that even neutrals have better days ahead as jobbers will soon be forced to replenish their diminishing motor oil stocks.

Kerosene stocks are practically exhausted. Only a few plants can make immediate shipments. Increased buying of 36-40 fuel oil has resulted in a firming of prices.

Compression and naptha blended gasolines are slightly lower but absorption blends are strong and prices range from 11¼ to 13¾ cents a gallon according to the gravity and end point.

Kentucky

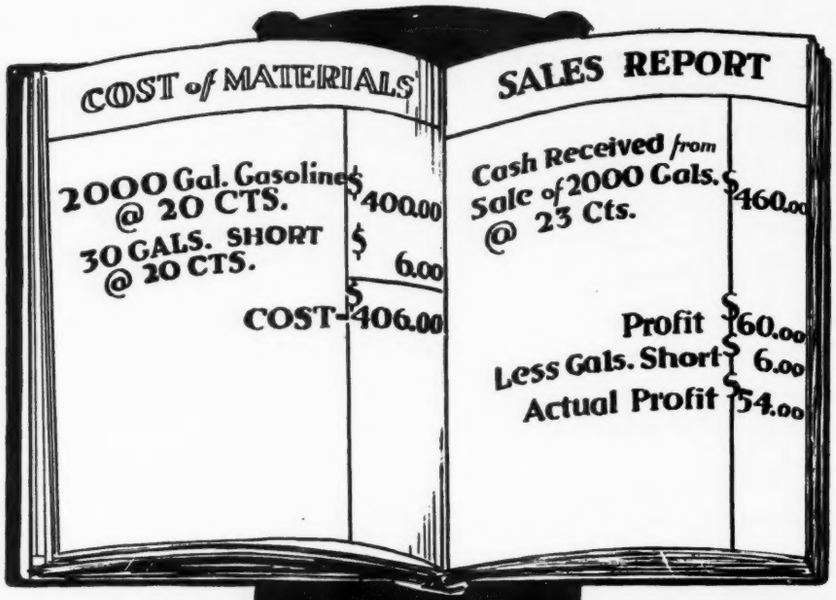
High test gasolines continue to be active in central Kentucky and prices are firm at ¼ cent a gallon more for all grades above 58-60 than prevailed a week ago. While 58-60 is generally quoted at 9 cents, some is being sold at 8¾ cents. Prices of other grades are: 60-62, 11¼; 62-64, 11¾; 64-66, 12¼; 66-68, 12¾, and 68-70 13¼ cents.

Kerosene is active and higher, very little being obtainable under 6¼ cents in central Kentucky. Gas and fuel oils are quiet and the latter has declined ¼ cent a gallon to 3¾ cents. Gas is quoted at 4⅜ cents.

La.-Ark. Gasoline Moving

SHREVEPORT, Sept. 29.—Gasoline movement from north Louisiana and Arkansas refineries has been good during the last week in September. At 6¾ and 7 cents a gallon on Navy the refiners have been able to move their production without difficulty.

While fuel is in somewhat better demand through the south, prices have been unable to advance above the 80-85 cent level which has prevailed for several weeks. Kerosene is strong and scarce at 4-4¼ cents.


COST of MATERIALS
2000 Gal. Gasoline @ 20 CTS. $400.00
30 GALS. SHORT @ 20 CTS. $ 6.00
COST $406.00
SALES REPORT
Cash Received from Sale of 2000 Gals. @ 23 Cts. $460.00
Profit $60.00
Less Gals. Short $ 6.00
Actual Profit $54.00

DO YOUR BOOKS RECORD the SHORT GALLONS?

How much more per gallon do you pay for gasoline because of the unintentional short measure you receive from your jobber? Your books do not make a record of "gallons short". They show only "gallons received" and "gallons sold". It is the item known as "gallons short" that never gets into the ledger. It is this item which is eating into the profits of your business! Insist upon service from Weldco-Tank equipped trucks. You are then absolutely sure that you receive 100% measure for every dollar you spend. Due to the funnel drain and the principle of gravity Weldcos drain dry to the last drop in the tank. Write today for free illustrated specification folder and our latest price list. State capacity tank, make of truck and year.

The Youngstown Welding Co.

530 Rayen Ave. Youngstown, Ohio

Welders Since 1912

Tank Wagon, Service Station Markets
Gasoline and Kerosene

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states the amount of the state taxes, the total tank wagon price with tax added in, and the service station or retail price of gasoline as quoted in the various Standard Oil marketing territories The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers. Usually this price does not apply to sales to consumers from tank wagons.

Prices in Effect Oct. 1

S. O. NEW JERSEY TERRITORY

	Gasoline			Oil
	T.W.	Tax	Total	S.S.	T.W.
Atlantic City N. J.	18.5	0	18.5	*	13
Newark, N. J.	18.5	0	18.5	*	13
Annapolis, Md.	18	1	19	*	13
Baltimore, Md.	18	1	19	22	12
Cumberland, Md.	18	1	19	22	14
Washington, D. C.	18	0	18	21	12.5
Danville, Va.	18	3	21	*	14
Norfolk, Va.	17	3	20	22	12
Richmond, Va.	18	3	21	24	12.5
Roanoke, Va.	18	3	21	24	14
Petersburg, Va.	18	3	21	*	13.5
Charleston, W. Va.	18	2	20	23	12.5
Clarksburg, W. Va.	18	2	20	*	13.5
Keyser, W. Va.	18	2	20	*	14
Parkersburg, W. Va.	17	2	19	*	11
Wheeling, W. Va.	18	2	20	23	12.5
Williamson, W. Va.	19.5	2	21.5	*	14
Charlotte, N. C.	18	3	21	24	13.5
Hickory, N. C.	18.5	3	21.5	*	14
High Point, N. C.	18	3	21	*	14
Mt. Airy, N. C.	18	3	21	*	13.5
Salisbury, N. C.	18.5	3	21.5	*	14
Charleston, S. C.	16	3	19	22	11.5
Columbia, S. C.	18	3	21	23	13.5

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK TERRITORY

*New York City	18.5	0	18.5	21	14
Albany, N. Y.	17	0	17	19	13
Buffalo, N. Y.	16	0	16	19	14
Rochester, N. Y.	15	0	15	17.5	13
Syracuse, N. Y.	16	0	16	18	11
Boston, Mass.	18.5	0	18.5	21	12

*In steel barrels.

ATLANTIC REFINING TERRITORY

Pittsburgh, Pa.	18	0	18	23*	14
Philadelphia, Pa.	18	0	18	23*	14
Allentown, Pa.	18	0	18	23*	14
Scranton, Pa.	17	0	17	22*	14
Dover, Del.	18	1	19	22	14
Wilmington, Del.	18	1	19	22	14
Providence, R. I.	18.5	0	18.5	21	14
Springfield, Mass.	18.5	0	18.5	21	14
Worcester, Mass.	18.5	0	18.5	21	14
Hartford, Conn.	18.5	1	19.5	22	14
New Haven, Conn.	18.5	1	19.5	22	14
Boston, Mass.	18.5	0	18.5	21	14

Last six cities are Atlantic's chief marketing points in New England. S. O. New York markets there also.

*Contains 2-cent tax collected by dealer and paid by him directly to state.

S. O. OHIO TERRITORY

All Ohio points	17	0	17	19	13

S. O. KENTUCKY TERRITORY

Lexington, Ky.	17	1	18	20	14
Louisville, Ky.	16	1	17	19	13
Covington, Ky.	17	1	18	20	13
Jackson, Miss.	15	1	16	18	11
Natchez, Miss.	14.5	1	15.5	17.5	12.5
Vicksburg, Miss.	14.5	1	15.5	17.5	12.5
Birmingham, Ala.	16	2	18	20	14.5
Mobile, Ala.	15	2	17	19	13.5
Montgomery, Ala.	16	2	18	20	15
Atlanta, Ga.	17	3	20	22	15
Augusta, Ga.	17	3	20	22	14
Macon, Ga.	17	3	20	22	14.5
Savannah, Ga.	15	1	16	18	13
Jacksonville, Fla.	15	3	18	20	13
Miami, Fla.	17	3	20	22	14.5
Tampa, Fla.	15	3	18	20	13
Pensacola, Fla.	15	3	18	20	13.5

S. O. CALIFORNIA TERRITORY

Phoenix, Ariz.	17.5	3	20.5	23.5	21.5
Los Angeles, Cal.	10	2	12	15	15.5
Fresno, Cal.	11.5	2	13.5	16.5	17.5
San Francisco, Cal.	11	2	13	16	15.5
Reno, Nev.	14.5	2	16.5	19.5	19
Portland, Ore.	12	3	15	18	16.5
Seattle, Wash.	12	1	13	16	16.5
Spokane, Wash.	15.5	1	16.5	19.5	20.5
Tacoma, Wash.	12	1	13	16	16.5

S. O. LOUISIANA TERRITORY

Camden, Ark.	14.5	3	17.5	20.5	12
Little Rock, Ark.	14.5	3	17.5	20.5	12
West Helena, Ark.	14.5	3	17.5	20.5	12
Alexandria, La.	13.5	1	14.5	17.5	12
Baton Rouge, La.	12	1	13	16	10.5
Lake Charles, La.	13.5	1	14.5	17.5	12
New Orleans, La.	12.5	1	13.5	16.5	11
Shreveport, La.	13.5	1	14.5	17.5	12
Bristol, Tenn.	16	2	18	21	14.5
Chattanooga, Tenn.	14.5	2	16.5	19.5	13.5
Knoxville, Tenn.	15.5	2	17.5	20.5	14
Nashville, Tenn.	14.5	2	16.5	19.5	13.5
Memphis, Tenn.	14	2	16	19	13

MAGNOLIA PETROLEUM TERRITORY

Muskogee, Okla.	11	1	12	16	9
Oklahoma City	13	1	14	16	9
Tulsa, Okla.	11	1	12	17	9
Fort Smith, Ark.	13.5	3	16.5	19.5	11
Little Rock, Ark.	14	3	17	20	12
Texarkana, Ark.	14	3	17	20	11
Dallas, Tex.	7	1	8	10	10
El Paso, Tex.	15	1	16	19	12
Fort Worth, Tex.	7	1	8	10	10
Houston, Tex.	14	1	15	18	11
San Antonio, Tex.	13	1	14	17	11

S. O. INDIANA TERRITORY

Chicago, Ill.	13.4	0	13.4	15.4	11.5
Decatur, Ill.	14.2	0	14.2	16.2	12
East St. Louis, Ill.	12.85	0	12.85	15.1	11.1
Joliet, Ill.	13.4	0	13.4	15.4	12.2
Peoria, Ill.	14.2	0	14.2	16.2	12
Quincy, Ill.	14	0	14	16	11.8
Evansville, Ind.	14	2	16	18	12
Indianapolis, Ind.	14.2	2	16.2	18.2	12.2
South Bend, Ind.	14.4	2	16.4	18.4	12.4
Detroit, Mich.	12.8	0	12.8	14.8	12.7
Grand Rapids, Mich.	14.7	0	14.7	16.7	12.6
Saginaw, Mich.	14.9	0	14.9	16.9	12.8
La Crosse, Wis.	15.2	0	15.2	17.2	12.9
Madison, Wis.	14.3	0	14.3	16.3	12
Milwaukee, Wis.	14	0	14	16	11.7
Duluth, Minn.	15.2	0	15.2	17.2	13.1
Mankato, Minn.	14.8	0	14.8	16.8	12.9
Minneapolis, Minn.	14.9	0	14.9	16.9	13.1
Davenport, Ia.	14.5	0	14.5	16.5	12.4
Des Moines, Ia.	12.5	0	12.5	14.5	12.4
Sioux City, Ia.	14	0	14	16	12
Kansas City, Mo.*	12.9	1	13.9	15.9	10.8
St. Joseph, Mo.**	13.8	.5	14.3	16.3	11.7
St. Louis, Mo.	13.6	0	13.6	15.9	11.5
Fargo, N. D.	15.6	1	16.6	18.6	14.7
Grand Forks, N. D.	17.6	1	18.6	20.6	14.9
Minot, N. D.	19.4	1	20.4	22.4	16.7
Huron, S. D.	14	2	16	16	13.6
Pierre, S. D.	14	2	16	16	13.6
Wichita, Kan.	13.8	0	13.8	15.8	11.3
Bartlesville, Okla.	12.9	1	13.9	15.9	10.4

*Kansas City tax of 1 cent imposed by city.
**St. Joseph tax of ½ cent imposed by city.

S. O. NEBRASKA TERRITORY

Crawford, Neb.	13	0	13	*	13.25
Omaha, Neb.	14.25	0	14.25	16.25	11.75

*Standard has no service station here.

CONTINENTAL OIL TERRITORY

Denver, Colo.	15	2	17	19	13
Glenwood Sp'gs, Colo.	19	2	21		17.5
Pueblo, Colo.	15	2	17	18	13.5
Basin, Wyo.	15	1	16		14
Casper, Wyo.	13	1	14	16	12
Cheyenne, Wyo.	15.5	1	16.5	18.5	15.5
Cody, Wyo.	16	1	17	*	15
Lander, Wyo.	15	1	16	*	14
Billings, Mont.	17.5	2	19.5	21.5	15.5
Butte, Mont.	19	2	21	23	16
Great Falls, Mont.	19	2	21	23	17
Helena, Mont.	19	2	21	23	17
Miles City, Mont.	18.5	2	20.5	22.5	16.5
Ogden, Utah	19.5	2.5	22	24	16.5
Salt Lake City, Utah	19.5	2.5	22	24	16.5
Boise, Ida.	18	2	20	22	19
Albuquerque, N. M.	17	1	18	20	15.5

*Continental has no service stations at these points.

Week's Price Changes Tank Wagon Market

CHICAGO, Sept. 28.—Since Aug. 14, when the general gasoline tank wagon price reduction of 6.6 cents a gallon went into effect in Standard Oil Co. of Indiana territory, price cutting has been profuse over the 10 states. Following its policy of allowing no Independent to undersell, the Standard Oil Co. has met all reductions at scattered points as they came. They have ranged in size from less than 1 cent to more than 2 cents.

Fargo, N. D., price went off 1.1 cents on Aug. 21; Sioux City, Ia., and Minot, N. D., each had a reduction of one-tenth of a cent on Sept. 6; Des Moines, Ia., got a 2-cent cut on Sept. 13; Robinson, Ill., also on Sept. 6, had a reduction of 2.4 cents to meet the competition of a home-made kerosene blend, and villages in the neighborhood, including Oblong, Ill., have been leveled with Robinson at intervals since. Friday, Sept. 28, Detroit, Mich., got a 2-cent reduction after the price had been cut there by the White Star Refining Co.

Kerosene price was not affected by any of these changes. Freight adjustments have been made recently also to points in the middle west, affecting Standard Oil Co.'s gasoline and kerosene prices slightly.

* * *

ROCHESTER, N. Y., Sept. 29.—Standard Oil Co. of New York today reduced gasoline 1 cent here. Another 1 cent reduction here was made Sept. 19. The present tank wagon price is 15 cents.

* * *

PHILADELPHIA, Sept. 27.—Effective Sept. 26 Atlantic Refining Co. reduced prices of gasoline 1 cent in Pennsylvania and Delaware.

* * *

SAN FRANCISCO, Oct. 1.—Standard Oil Co., of California today increased gasoline 2 cents in California to cover new state tax effective today.

* * *

TULSA, Oct. 1.—Magnolia Petroleum Co. Sept. 29 reduced gasoline 1 cent at Dallas and on Sept. 26 reduced gasoline 2 cents at Muskogee.

* * *

LOUISVILLE, KY., Oct. 1.—Standard Oil Co. of Kentucky today increased gasoline 2 cents a gallon in Georgia to cover additional state tax.

PORTLAND, ME., Sept. 27.—Edgar J. Warren of the Warren Tire Stores Co. of Portland is working with architects on a combination gasoline, oil and tire service station which Mr. Warren intends to be the best in Maine. He shortly will visit model service stations in several states to gather ideas for his project. The station is to be built on a triangular lot with frontages on two streets and a railroad siding. He will install tankage for both wholesale and retail gasoline and oil trade. The tire service will be mostly for large pneumatics.

The Warren company also will install gasoline tankage in a building it owns which is being vacated by a storage battery branch office. He also will handle tires and accessories at this place.

Export Market Is Quiet; Prices Are Cut

By Special Correspondent

NEW YORK, Oct. 1.

WHILE actual business transacted in local export circles was not very large last week, the market in general was more colorful than during the previous week, due chiefly to better foreign inquiry. The average foreign buyer is still inclined to purchase very cautiously, but on the other hand, one or two of the large Independents seem determined to move their goods, and are selling at prices below the export quotations posted by the leading refiners. In fact, the posted export prices mean little, being entirely nominal. For instance, the bulk price of new Navy is quoted at 12 cents a gallon, but on a firm bid business in some directions can be done around 10 and possibly 9½ cents.

One of the big Independents is selling kerosene at concessions; in fact several of the smaller factors who are offering 41-43 prime white and 43-45 water white at 4⅞ and 5¼ cents, respectively, at the Gulf say they are unable to secure any business at these figures, attributing the dearth of foreign orders to sharp price cutting by a large Independent, who is selling a great amount of oil in France just now. A cargo of 50,000 barrels of mixed gasoline and kerosene, however, sold at 11¼ for 64-66 and 8¼ for 58-60, Navy, while 41-43 prime white brought 4⅞ cents and 43-45 water white 5¼ cents Gulf.

Exporters complain that the Mid-Continent kerosene prices are out of line with export prices just now, stating that they are unable to secure much of anything unless they are willing to pay 1 cent or so above the quotations that prevailed a short time ago. Export demand for cased kerosene was rather disappointing and no sales worth commenting upon were heard of.

Gasoline Demand Disappoints

Gasoline demand is disappointing. While some factors seem to be making special efforts to push export sales of this product, comparatively little new business came to light. Offerings of cargoes of new Navy at 9¼ cents attracted little or no attention from the foreign buyers, who are sitting back waiting for further reductions. The leading companies are still quoting Navy in bulk for export at 12 cents a gallon. Inquiries for all descriptions of motor fuel are numerous but are almost entirely of an academical nature.

Conditions abroad are anything but favorable from the exporter's standpoint. There is keen competition throughout France and the smaller factors have little chance to land any business worth while. German buyers are still adhering to the old hand-to-mouth policy and not much gasoline was purchased for German account last week. There were rumors current that one of the large European houses had closed a 20 year gasoline contract with Mid-Continent refiners, but confirmation was lacking.

The inquiry from the Orient for cased gasoline has improved and local interests feel that there will be a fairly good movement in this direction before long, but actual demand for cased gasoline was poor last week. The price in tank cars delivered to the domestic trade, remained unchanged at 11¼ cents a gallon.

Bunker Oil Is Quiet

Bunker oil remained quiet. None of the large buyers seems inclined to purchase beyond nearby requirements, with the exception of a few big consumers who have already contracted for some time ahead. The f. o. b. New York harbor refinery price was unchanged at $1.60 a barrel. Gas oil is easier. A cargo of 26-28 gravity oil was offered around at 2¾ cents Gulf, but buyers showed little or no interest at this figure. Locally 36-40 is virtually neglected at 4¼ cents, refinery.

Lubricating oils were moving in a fair way, but most of the foreign demands were confined to lots ranging from 100 to 400 barrels. Local refiners are now asking 18 cents for Pennsylvania 600 s. r. in barrels New York, but business could have been done at 17 cents on a firm bid. Western stock is quoted at 16 cents but 15½ cents could have been done. The other lubricants held up fairly well at unchanged prices. French buyers are showing a keen interest in the red oils but no sizable dealings were uncovered. Refiners seem to be more confident of the future regardless of the proximity of winter.

Waxes were steady, and devoid of featuring development. Stocks on spot are in fairly firm hands and there seems to be less disposition to press sales. White crude scale 122-124 A.m.p. was offered at 3 cents while yellow crude scale, 124-126 A.m.p. is held at 2¾ cents. Fully refined 118-122 is unchanged at 3½ cents. Semi-refined 122-124 is quoted at 3¼ cents while match 111-115 is held at 3⅞ cents.

The medicinal oils were flat and more or less neglected. Demand is not so good as it was a few days ago. Prices were unchanged. Export inquiries were scarce.

The petrolatums held up fairly well. Snow white was in good demand at 11½ cents a pound, with several fair sized purchases credited to English manufacturers of facial creams. Lily white was dull and rather featureless at 9¼ cents a pound. Amber was held at 3¼ cents while veterinary was quoted at 3 to 3½ cents.

New York Market

The following prices are quoted by eastern seaboard independent refineries on products which are manufactured from Mexican crude transported from Tampico to the refinery by tanker and from California crude.

	Oct. 1
*Gasoline (New Navy) gal., Tank Cars	11½
‡Bunker oil (F.O.B.New York) bbl	1.60
Gas Oil (36-40 refinery) gal	.04¼
†Kerosene, 45-150 W.W.Bulk Del.,N.Y.nom	.06

*Delivered.
†Nominal.
‡Plus .06½ charge lighterage.

Export Markets

Furnished to N. Y. Produce Exchange by big exporting oil companies. No actual sales. Record for statistical purposes only.

Illuminating Oils

	Oct.. 1	Sept. 24
Bulk, gal., Bayonne	5.50	5.50
Barrels, gal., Bayonne, cargo	12.50	12.50
Cases, gal., Bayonne	15.40	15.40

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naptha
(Cents per Gallon)

U. S. Navy, dead bulk	12.00	12.00
U. S. Navy, cases	25.65	26.65
Export grade, bulk	13.00	13.00
63-66 deg. bulk	15.00	15.00
63-68 deg. bulk	16.50	16.50

Tide Water Oil Company
(f. o. b. Bayonne)

59-60 deg. bulk	13.00	13.00
59-61 deg. cases	25.65	26.65
Export grade, Navy Specifications bulk	12.00	12.00
63-65 deg. bulk	15.00	15.00
68-72 deg. bulk	17.50	17.50

	Bulk	Barrels	Cases
Standard white 110	5.50	12.50	15.40
Water white 150	6.50	13.50	16.40

The Texas Company

Gasoline, cases		25.65	26.65
Kerosene	**Bulk**	**Barrels**	**Cases**
Standard White	5.50	12.50	15.40
Prime White	6.00	13.00	15.90
Water White	6.50	13.50	16.40

Gasoline Consumption Higher In England

NEW YORK, Sept. 29.—According to Francis E. Powell, chairman of the Anglo-American Oil Co., who arrived in New York Thursday night, on the Acquitania for his annual trip to this country, the recent slashing of oil and gasoline prices has tended to increase consumption of virtually all descriptions of petroleum products 20 per cent throughout Great Britain.

Mr. Powell said; "I was not at all sorry to see the decreases in the prices of American fuel oils because consumption in Great Britain has increased about 20 per cent. Naturally this figure includes the regular increase which would result in the number of automobiles being augmented.

"At the present time there are approximately 700,000 motor vehicles in England. One thing quite remarkable about this number is the fact that it includes about 300,000 motorcycles."

Mr. Powell said the bulk of the oil imported into England was coming from the Far East although a large quantity of gas and fuel oils were being imported from California.

Sells Postoffice Gasoline

NEW YORK, Sept. 29.—Standard Oil Co. of New York has obtained from the New York postoffice contract for the delivery of 18 tank car loads of Navy gasoline to be delivered to the Postoffice storage plant in Long Island City. Its price was 11¼ cents delivered. The highest bid was 14½ cents a gallon.

Chemicals Are Firm; Benzol Quiet

By Special Correspondent

NEW YORK, Oct. 1.—Several of the vegetable oils were slightly higher due to the strength in raw material. Linseed oil futures were advanced from 1 to 3 cents a gallon. Spot raw oil in carlots coop-erage basis is now held at 91 cents a gallon while October is now quoted at 90 cents; November-December at 89, and January-April at 88 cents. The demand for linseed oil was light and spasmodic and the consumers feel there will be a reaction in flaxseed soon, which will force oil to lower levels. No offerings of foreign oil appeared on the local market during the week. Activity was chiefly confined to the filling of standing contracts. Soya bean oil was quiet. Most of the importers are offering more sparingly at from 9¼ to 9½ cents a pound in tank cars on spot.

The animal oils failed to show any commentable changes. Business was of a light routine nature. Domestic buyers of lard and neatsfoot oils were rather conservative in their purchases but there was a better export demand for both of these oils. Tallow oil was quiet. Degras marked time and prices were without commentable change. Stearic acid was slightly firmer although no price fluctuations were announced. Red oils are in better request at unchanged prices. Horse oil is nominal at 8 cents per pound.

The fish oils were somewhat firmer. Unfavorable weather conditions have interfered with fishing and production of crude menhaden oil has been rather light. Producers are asking 50 cents a gallon in tank cars at the factory but buyers are not inclined to pay this price, and are countering with bids of 45 cents and considerable business was put through at this figure early in the week. Light pressed menhaden oil in barrels, New York, is held at 65 cents a gallon, with little or nothing offered below this level. Cod oil is in better demand but no sizable transactions have been heard of. Whale and sperm oils were quiet.

The chemicals remained fairly firm last week. There was a much better demand for caustic soda contracts, and prices were firmly held. Spot trading was light. Bleaching powder was active and firmer at $1.35 a hundred pounds. There is nothing available at $1.25, the price that prevailed during the previous week. Stocks are in firm hands. Soda ash is much more active and prices were steady. Larger buyers are showing more disposition to purchase ahead. Benzol remained quiet and rather easy in tone with buyers purchasing in a spasmodic way.

Naval stores were a trifle firmer. Spirits of turpentine was held at $1 a gallon in wooden barrels ex yard. Stocks on hand are of moderate proportions. Foreign buyers were inquiring in a fairly spirited way but most of the demands were confined to rather small quantities. No unusual developments took place in the southern markets. The rosins are holding up fairly well. Both domestic and foreign consumers are showing more interest in the market, although purchasing in a limited way.

Refiners' and Jobbers' Supplies

Following are the average market prices for the week on the principal materials used by refiners and jobbers, f. o. b. shipping point as effective this date

***Benzol**

	Oct. 1	Sept. 24
Pure Water White, Tanks....gal.	—.27	$—.27
Drums...gal.	—.32	—.32
90%.....Tanks....gal.	—.25	—.25
Drums...gal.	—.30	—.30

Refiners' Supplies

Soda Ash light 58%...cwt.	$1.75-2.10	$1.45-2.10
Silicate of Soda 60 deg....Bbls.....cwt.	-2.00	-2.00
Sal. Soda wks.....cwt.	1.10-1.30	1.10-1.30
Caustic Soda 76%....cwt.	3.16-3.30	3.16-3.30
Chloride of Lime solid cwt.	1.35-1.50	1.25-1.50
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	9.00-11.00	9.00-11.00

Jobbers' Supplies (Open Market)

Vegetable Oils—		
*Linseed, carloads Spot..gal.	$.91-	.88-.92
October.....gal.	.90-	.86-.87
Nov.-Dec.....gal.	- .89	.84
Jan. Forwards.....	.88-	.83
Less carload Spot.....gal.	- .94	-.94
5 Bbls. or less Spot....gal.	.95- .98	.95-.98
Boiled, tank Spot.....gal.	- .87	.87
Boiled, carloads Spot...gal.	- .93	-.93
Soya Bean Spot, Tanks.....lb.	.09¼-09½	.09¼
Animal Oils—		
English Degras.....lb.	$-.04¾	$-.03¾
Domestic Degras, bbls. carloads.....lb.	-.04	-.04
Horse.....lb.	-.08	-.08
Oleic Acid—		
Dist.....lb.	-.09¾	-.09¾
Saponified.....lb.	-.09¾	-.09¾
Lard Oils—		
Prime Winter Strained . 1 to 1½ffa. 40/45c.t.lb.	$.16	$.16½
Extra Winter Strained . 2 to 4½ffa. 40/45c.t.lb.	.13¾	.13¾
Extra..... 4 to 5 ffa. 40/45c.t.lb.	.13¼	.13¼
Extra No. 1..... 7 to 10 ffa. 40/50c.t.lb.	.11½	.12
No. 1.....15 to 18 ffa. 40/45c.t.lb.	.11	.11½
No. 2.....22 to 23 ffa. 40/45c.t.lb.	.10½	.11
Prime Edible Tallow under 1¾ ffa. 40/45c.t. N. Y.....lb.	-.09½	.09½
Tallow acidless.....lb.	-.12¼	.12¼
Lard Stearine.....lb.	-.15¾	.15¼
Oleo Stearine.....lb.	.13	.12¾
Neatsfoot Oil—		
Pure.....bbls.-lb.	14¼	14¼
Extra.....do lb.	11½	12
No. 1.....do lb.	11	11½
Cold pressed.....lb.	17¼	17¼
Fish Oils—		
Menhaden Oil Light pressed.....gal.	$.65-	.62-.65
White.....gal.	.68-.70	.68-.70
Yellow bleached.....gal.	-.67	-.65
*Herring, tank cars coast gal.	-.40	-.40
Whale, extra winter bleached.....gal.	.81	.81
Seal.....	Nominal	
Naval Stores—		
Turpentine, N. Y.....gal.	1.00	.99
Turpentine†.....gal.	.92½	.92½
Rosin B. N. Y.....Bbl.	5.95	5.95
Rosin F. N. Y.....Bbl.	5.95	5.95
Rosin B.†.....Bbl.	4.50	4.57½
Rosin F.†.....Bbl.	4.50	4.57½
Rosin Oil 1st run.....gal.	.42	.42
Rosin Oil 2nd. run.....gal.	.48	.48
Pine Tar—		
Kiln Burnt.....Bbl.	11.00	11.00
Retort.....Bbl.	11.00	11.00

†Savannah, Ga., market.
‡Carlots.
*Nominal.

Mid-Continent Gas Firm

(Continued from page 113)

quoting a maximum price for home heating distillate delivered which will make it difficult for jobbers to do business at a profit if tank car prices advance much above their present level. The average price in Indiana territory seems to run from 7½ to 8½ cents delivered. With an average freight rate of 3 cents a gallon and an average cost of 3¼-3½ cents there will be little margin remaining even now.

Lube prices have not receded from their new levels. Most of the refiners are well supplied with orders for the present and will not feel a reaction to the higher prices at once. It is the opinion of some that no reductions may be expected in spite of competition from other adjacent fields where prices are somewhat lower.

Fuel Oil Steady

Fuel oil seems to have absorbed all of the reduction in crude which it can in view of the low state of stocks and the reasonably good movement. There has been no reduction for the general range of prices between 82½ and 87½ cents a barrel. North Texas is absorbing the freight differential on fuel and moving into Indiana territory but has not appeared inclined to cut the price beyond that figure.

There is a more general feeling now that fuel will not slide much lower with winter demand at hand and runs low. Railroads and industrials are taking out the maximum under their contracts and some refiners are unable to deliver all of the fuel for which they have contracted.

Moderate Temperatures To Start Month

CHICAGO, Sept. 30.—Normal temperatures will prevail throughout Standard Oil Co. Indiana territory between Oct. 1 and 6, according to the weather bureau forecast. Fair weather will be the rule but the week will be broken by a day or two of showers. The rain is expected on Monday in the upper Mississippi and lower Missouri river valleys. In the region of the Great Lakes and along the Ohio river, the weather will likely be at its worst on Wednesday.

The central part of the United States has had rather a dry week. Territories where the Standard Oil Co. of New Jersey and the Continental Oil Co. market got most of the rain the first three days of last week. Thereafter the farming region of the upper Mississippi river valley had rain every day. On Saturday the rain spread as far east as Ohio and there was scattered precipitation elsewhere. Temperatures have been close to normal throughout the middle west for about a week, three warm humid days occurring late in the month.

Freezing weather was recorded in North Dakota and Montana. In Oklahoma and Kansas, which have been holding their heat records for a month, there was some cool weather. In those two oil producing states also there was considerable rain early last week. A station in Oklahoma reported one rain of 4.3 inches.

Crude Oil Prices All Fields

EASTERN FIELDS

	1923 Oct. 1	1922 High		1922 Low		1921 High		1921 Low	
Bradford—Allegany	$2.75	Jan 1	$4.00	July 19	$3.00	Jan 1	$6.10	June 29	$2.25
Other Pennsylvania	2.50	Jan 1	4.00	July 19	3.00	Jan 1	6.10	June 29	2.25
Cabell	1.35	Jan 1	2.61	July 19	1.86	Jan 1	4.46	June 29	1 11
Corning	1.45	Jan 1	2.40	July 20	1.75	Jan 1	4.00	June 29	1.20
Somerset	1.25	Jan 1	2.40	July 19	1.65	Jan 1	4.50	June 29	1.00
Somerset Light	1.40	Jan 1	2.65	July 19	1.90	Jan 1	4.25	June 29	.90
Ragland	.75	Jan 1	1.25	July 19	1.00	Jan 1	2.60	June 29	.60

Somerset oil run on and after Oct 1, 1922, takes price of 6 cents higher than above quotation

CENTRAL STATES FIELDS

Wooster	$1.50	Jan 1	$2.70	Sept 21	$1.00	Jan 1	$4.95	June 27	$1.80
Lima	1.68	Jan 1	2.48	July 20	1.98	Jan 1	3.73	June 27	1.58
Indiana	1.48	Jan 1	2.28	July 20	1.78	Jan 1	3.63	June 27	1.38
Princeton	1.47	Jan 1	2.27	July 20	1.77	Jan 1	3.77	June 27	1.27
Lodi	1.50	Jan 1	2.70	July 20	1.90	Jan 1	4.00	June 27	1 80
Illinois	1.47	Jan 1	2.27	July 20	1.77	Jan 1	3.77	June 27	1.27
Waterloo, Ill	.95	Jan 1	1.75	July 20	1.25	Jan 1	1.75	June 27	.75
Plymouth	.85	Jan 1	1.65	July 20	1.15	Jan 1	3.48	June 27	.65
Canadian Petrolia	2.08	Jan 1	2.88	July 20	2.38	Jan 1	4.13	June 27	1.98
Western Ky	1.25	Jan 1	2.40	July 19	1.65	Dec 1	2.40	June 27	.58

MID-CONTINENT AND NORTH TEXAS FIELDS

Below 33	.90	Currie	1.00
33-39 9	1.30	Mexia	1.00
40 and above	1.75	Powell	1.00

Magnolia's Price Schedule

(Also adopted by Texas Co., and Empire, the latter as to Healdton only)

Under 28	.50	40 and above	1.75
28-30.9	.70	Corsicana, light*	1.00
31-32.9	.90	Corsicana, heavy	.50
33-39.9	1.30	Thrall	1.00

*Including Powell

NORTH LOUISIANA-ARKANSAS FIELDS

Caddo, 38 degrees and above	$1.25	El Dorado, below 33	1.10
do 35 to 37.9	1.15	Bull Bayou, 38 and above	1.15
do 32 to 34.9	1.10	do 35 to 37.9	1.05
do below 32	.75	do 32 to 34.9	1.00
Homer, 35 and above	1.25	De Soto	1.25
do 33 to 34.9	1.15	Crichton	.90
do 31 to 32.9	1.10	Bellevue	.75
do below 31	.75	Smackover, 26 and above	.75
Haynesville, 33 and above	1.10	25 to 25.9	60
do below 33	1.00	24 to 24.9	.50
El Dorado, 33 and above	1.25	Below 24 Be	.40

GULF COASTAL FIELDS

	1923 Oct. 1	1922 High		1922 Low		1921 High		1921 Low	
Spindletop	$1.00	Jan 1	$1.25	Dec 30	$1.25	Jan 1	$2.50	June 18	$ .80
Goose Creek	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Goose Creek "B"	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.70
Sour Lake	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Humble	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Batson	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Hull "A"	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Hull "B"	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
West Columbia	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Edgerly	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Vinton	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Jennings	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Dayton	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80
Saratoga	1.00	Jan 1	1.25	Dec 30	1.25	Jan 1	2.50	June 18	.80

WYOMING FIELDS

Elk Basin	$1.35	Jan 1	$1.90	Aug 4	$1.20	Jan 1	$3.10	June 27	$1.00
Grass Creek	1.35	Jan 1	1.90	Aug 4	1.20	Jan 1	3.10	June 27	1.00
Big Muddy	.75	Jan 1	1.40	Aug 4	.70	Jan 1	2.75	June 27	.50
Salt Creek	.90	Jan. 1	1.40	Aug. 4	.70	Jan. 1	2.75	June 27	.50
Lance Creek	1.20	Jan. 1	1.90	Aug. 4	1.20	Jan. 1	3.05	June 27	.95
Rock Creek	.90	Jan. 1	1.50	Aug. 4	.80	Jan. 1	2.85	June 27	.60
Osage	1.35	Jan 1	1.90	Aug. 4	1.20	Jan. 1	3.05	June 27	.95
Cat Creek, Mont	1.35	Jan. 1	1.90	Aug 4	1.20	Jan. 1	3.10	June 27	1.00
Sunburst, Mont	.70								

CALIFORNIA

14-19.9	$ .60	25-25.9	.74	30-30.9	$ .89
10-20.9	.61	26-26.9	.77	31-31.9	.92
21-21.9	.62	27-27.9	.80	32-32.9	.95
22-22.9	.65	28-28.9	.83	33-33.9	.98
23-23.9	.68	29-29.9	.86	34-34.9	1.01
24-24.9	.71			35 and above	1.04

North Texas Market Is Holding Up

(Complete Refinery Prices pp. 115-117)

WICHITA FALLS, Sept. 29.—There has been no marked change in the north Texas refinery market structure during the past week. Gasoline prices have maintained their former level with a fair movement into the southeast as well as into Indiana territory.

For Indiana business the refiners are absorbing the ⅛ cent freight differential and moving Navy at 6⅜ to 6¾ cents a gallon. A little Navy has been sold for delivery over the month at 6¼ cents.

September has seen Texas gasoline stocks reduced by active export and domestic business. The group is entering the fall season in a fairly good current condition.

Natural gasolines have been more active with prices advancing during the week. There has been a little more call for blends but the rate of production is being kept low. Both naptha and natural gasolines are too high to show good results on operations.

Distillates are active with 38-40 light straw moving at 3 and 3¼ cents a gallon. The production is not large in Texas. Kerosene is steady at 3¾ and 4 cents a gallon.

In addition to losing a large part of its railroad fuel business the north Texas refinery market is losing the smelter trade in the El Paso area which has been a big factor until recently. The smelters and a number of the cotton ginners have been turning to Luling crude for their fuel. Northern Texas ginners are buying some fuel but the bulk of the movement is being delivered north.

With Oklahoma fuel selling at 82½ cents a barrel it is necessary for the Texas refiner to quote 75 cents on goods destined for the north where there is a 7½ cent freight handicap.

Kansas Refiners Become More Optimistic

(Complete Refinery prices, pp. 115-117)

WICHITA, KAN., Sept. 29.—Refiners in this territory are more optimistic than for some time past, due to the fact that gasoline prices are strengthening noticeably which fact may result soon in an advance in tank car prices.

Most refiners in this territory have reduced their gasoline stocks and are now merely taking care of their older and better established trade.

When the Prairie Oil & Gas Co. reduced the price of crude recently it was thought by some that increased crude runs would follow. While this has been the case in remote sections, it is not the general rule in any sense of the word, and as far as the refiners in this territory are concerned there is nothing to indicate, at this time, that the present pro-rating of runs will be changed.

With distillate selling at a price equal to what it was previous to Nov. 22, 1922, when high gravity crude was quoted at $1.25 a barrel, the refiners generally expected a higher market this winter, especially since there is apparently a shortage of this product. But instead, the same retail price prevails this winter as last, and in some locali-

ties a small war is brewing. This is especialy true in Salina and Hutchinson, Kan.

There appears to be a little strengthening in kerosene prices, and also fuel oil, as compared with last week. This, no doubt, is being brought about by reason of reduced stocks, large consumption and greatly reduced crude runs.

Kansas Standard Closes Neodesha Refinery

TULSA, Sept. 26.—With the closing this week of the refinery of the Standard Oil Co. of Kansas at Neodesha, refinery runs in Kansas are at a lower point than they have been for several years, with the exception of a short time this spring when virtually the entire state was tied up on account of floods.

The Standard plant has ceased running crude it was reliably reported here but is still operating its pressure stills on gas oil which it had in stock. During the past few months the plant has been charging to its stills approximately 6000 barrels of crude a day. It is a customer of the Prairie Oil & Gas Co.

Earlier in the month the Derby Oil Co. at Wichita closed its 5000-barrel plant for 60 days and began purchasing crude on the outside to fill its requirements. Other plants have reduced their runs extensively.

Out of the 40 refineries in Kansas with a capacity of roughly 115,000 barrels a day there are only 18 active plants today charging in all less than 40,000 barrels of crude or about 33 per cent of the total capacity of the state.

In spite of the fact that Cosden & Co. and the Marland Refining Co. have been forced to speed up their runs to obtain heavy oils for fuel and lubricants the Oklahoma situation is being kept well in hand. It is estimated that refinery runs in Oklahoma at this time are down to roundly 130,000 barrels a day making total runs for the two states about 170,000 barrels.

With refineries in the two states maintaining an average of 214,840 barrels of crude a day run to their stills during the first seven months of the year as shown by reports of the Bureau of Mines the present rate of runs represents a decline of 20 per cent. As compared with the high average of 236,807 barrels of crude run during January of this year the reduction is 66,800 barrels a day or 31 per cent.

The Mid-Continent refiner has found a much better domestic and export market for gasoline and a more active demand for heavy oils within the past 30 days but has not made the mistake of speeding up his operations and accumulating inventories above current requirements. That factor is the most hopeful angle in the Group 3 market.

It is predicted by a number of refiners and others in the Mid-Continent who are conversant with present conditions that refinery runs as a whole cannot be speeded up and that the coming winter will see operations kept at an extremely low level. They base their belief largely on the fact that refiners have dissipated their surpluses from 1922 in the heavy inventory losses of this year and that outside financing will be necessary to build up gasoline inventories during the rest of this year.

GULF Refining Company

General Sales Offices
PITTSBURGH, PA.
District Sales Offices
New York, Houston, Atlanta, Boston, New Orleans, Tampa, Philadelphia

REFINERS OF OKLAHOMA TEXAS AND LOUISIANA

PETROLEUM

REFINED OIL
GASOLINE
NAPHTHA
GAS OILS
PARAFFINE WAX
ASPHALT

Fuel Oil--Lubricating Oils

CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

Fight Over Proposal To Equalize Gulf Export Rates

WASHINGTON, Oct. 1

A BITTER fight that has been brewing between Texas gulf port cities and Louisiana ports with the railroads serving them ever since last spring, has reached the Interstate Commerce Commission.

The prize is the export and coastwise business of the Oklahoma refiners, located at 21 refining points in that state. It will reach a crisis Oct. 10 when, if the commission does not suspend the tariffs, rates to New Orleans and its 24 sub-ports, on export petroleum and its products, will be reduced from 24.5 cents per 100 pounds to 22 cents.

Another crisis in the same fight will come Oct. 24, or earlier. On that day the rates on coastwise traffic through the Louisiana ports are due to become operative. They are the same as the export rates, but, for reasons known only to the railroads, they are not carried in the same tariffs.

If the reduced rates, favored by oil shippers in Oklahoma, are permitted to become effective, the Texas and Louisiana ports, so far as the figures are concerned, will again be on a parity as they were before last March when the rates from Oklahoma to Texas ports were cut from 24.5 to 22 cents.

Texas City, the Santa Fe, the Santa Fe's subsidiary, the Gulf Colorado & Santa Fe and the Texas City Terminal company have asked for the suspension of the tariffs. The Texas City Board of Trade has filed a request suspension on the broad grounds that the Texas ports are nearer Oklahoma refining points and are entitled to the benefit of lower rates because they are on an average 34 per cent nearer the points of origin.

It insists that, upon equal rates, the the rates to New Orleans should be at least 2.5 cents higher. It also insists Louisiana ports would have an advantage because the mileage allowance on the tank cars of the refiners would be larger because of the greater distance.

The Texas City organization figured the refinery capacity of the 21 Oklahoma points of origin at 186,000 barrels daily, of which 145,200 barrels originated at nine points on the Santa Fe and the Katy, leaving a net refinery daily capacity of only 41,100 not being able to ship over the direct lines of the Santa Fe or M-K-T.

"There are other refining points in Oklahoma that are now, or have been recently in active operation," said the Texas City board of trade, "of these other ports protestants have been able to locate approximately 33 that are now or recently have been in actual operation of which 17 are at points reached by the rails of the Santa Fe and the M-K-T and which 17 points have a combined daily refining capacity of 129,800 barrels which added to the 145,200 daily refining capacity of the nine refining points heretofore referred to, yields a total of 275,000 barrels daily refining capacity, having a one line haul to the Texas Gulf Port outlet for export or coastwise forwarding."

The Texas organizations said the refineries requiring a two-line haul to the ports had a combined total of only 41,100 barrels. It said they alone were directly interested in joint line rates with the Louisiana lines.

Referring to the reduction made last March to the Texas ports, the Texas City organization said the result of that action by the direct Oklahoma-Texas gulf port rail lines was the prompt location at Texas City of a large plant of an Oklahoma refinery, for the forwarding by export and coastwise of its petroleum products and which had been about to locate its tidewater facilities at or adjacent to the port of New Orleans.

"A pertinent phase of the circuitous rate routes involved to New Orleans from these Oklahoma origins as well as in the short line haul over which the proposed reduced rates to New Orleans do not now specifically apply," said the board of trade "rests in the mileage allowance by rail lines to private tank car owners which is 1.5 cents per mile for loaded and equalized empty mileage as carried in Jones' ICC No. 1342, Item No. 88.

"As an illustration, using Tulsa as a refining origin, and New Orleans as the Louisiana port of destination, the specific rate route via the Midland Valley and Missouri Pacific through Arkansas to Alexandria, La., and thence via Texas & Pacific would yield 827.6 miles and the mileage allowance on a loaded and empty movement would be $24.82 per round trip, as against the same private allowance from Tulsa to Galveston over the M. K. T. of $20.44 on a distance of 681.3 miles each way; or Tulsa to Galveston via Midland Valley Muskogee, Kansas Oklahoma & Gulf, Denison and Southern Pacific Lines of $19.02 on a distance of 634.2 miles each way.

"Actually in the attempt to revise the Texas Gulf ports out of the natural geographical advantage in the way of distance, the Louisiana lines complained of, are attempting to reduce to the level of these rates, to a lower basis than actually obtains to Galveston even if the additional cost of motor power, train crews, and clerical detail involved, in the longer haul (and which additional cost the protestants have no avenue of acquaintance with or method of computation) be not included."

The protesting rail lines repeated many of the facts set forth in the review of the situation put forth by the Texas City board of trade and said that the whole question of the relationship of rates on classes and commodities including petroleum and its products as between the Texas and Louisiana ports was before the commission in No. 12,798, Galveston Commercial Asociation et al., vs. the Galveston, Houston & San Antonio et al. They said the Commission in its consideration of this petition should take cognizance of the formal docket case and not allow the relationship of the Texas Gulf Ports vs. New Orleans and Sub-ports to be disturbed until the entire situation was

(Concluded on page 126)

Lower Gasoline Prices Reflected In August Export Values

WASHINGTON, Sept. 27.—Declining gasoline prices are reflected in the report of the Department of Commerce on exports of petroleum products for August. Gasoline shipments declined almost 4,000,000 gallons in August from the total July exports but the average value per gallon declined from 16.3 cents in July to 15.5 cents in August. In August, 1922, the average value per gallon was 23.1 cents.

Kerosene exports increased more than 25 per cent in August over July but the average value per gallon fell from 8.6 cents to 8.4 cents. Fuel and gas oil shipments also increased but the average value fell from 3 cents to 2.7 cents a gallon.

Lubricating and crude oil exports remained at almost the July level. Average values of each, however, showed declines. Wax exports declined from 26,905,396 pounds in July to 23,771,038 pounds in August. The average value was approximately 3.4 cents a pound each month.

Exports Of Petroleum And Products From United States

	8 Months Ended August, 1923 Gallons	8 Months Ended August, 1923 Value	8 Months Ended August, 1922 Gallons	8 Months Ended August, 1922 Value
Gasoline and Naptha	561,861,822	$ 99,918,193	403,409,152	$ 89,613,510
Kerosene	542,544,546	$ 51,897,943	581,787,352	$ 54,707,952
Lubricants	237,823,698	$ 52,399,359	225,517,767	$ 51,634,576
Fuel and Gas Oils	774,313,481	$ 23,258,226	426,888,794	$ 17,499,931
Crude Oil	452,551,989	$ 15,615,769	260,857,111	$ 12,358,692
Total Exports	2,569,095,536	$243,089,490	1,898,460,176	$225,814,661

Exports In August, 1923, July, 1923, And August, 1922

		Aug. 1923	July, 1923	Aug., 1922
Gasoline and naptha	Gallons	76,757,581	80,693,175	36,009,904
	Value	$11,881,626	$13,180,832	$ 8,302,574
Kerosene	Gallons	79,548,150	58,915,195	86,641,437
	Value	$ 6,736,985	$ 5,074,528	$ 8,177,396
Lubricants	Gallons	22,349,106	22,693,214	27,020,209
	Value	$ 5,253,342	$ 5,831,762	$ 5,931,385
Fuel and gas oils	Gallons	114,762,945	98,064,819	59,530,469
	Value	$ 3,191,584	$ 2,972,954	$ 2,350,529
Crude Oil	Gallons	63,441,370	63,755,613	31,180,548
	Value	$ 2,000,490	$ 2,463,499	$ 1,331,666
Total exports	Gallons	356,859,154	324,122,016	240,382,567
	Value	$29,064,027	$29,463,575	$26,093,550

Transactions In Oil Shares On New York Stock Exchange

1922 High	1922 Low	1923 High	1923 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Sept. 28 Sales	First	High	Low	Last	Ch'ge
135½	91	134	98¼	$40,000,000	$100	Associated Oil	1½Q	July 25, 23	1,100	100	100½	x†98¼	98¼	—1¾
1575	117	160	98¾	50,000,000	100	Atlantic Refining	$1Q	Sept. 15, 23	800	102	103	101	103	+2
119½	114	120	115	20,000,000	100	do pfd	1¾Q	Aug. 1, 23	.....	.....	.....	.....	.....	.....
56¾	19¾	35	9⅞	13,000,000	25	Barnsdall Corp. A	.62½	Apr. 30, 21	2,800	11¼	14¼	11¼	12	+1⅜
39	17	22	6⅜	3,713,275	25	do B	.62½	Apr. 30, 21	1,300	8	9½	8	9	+1
15¼	6¾	9⅛	1½	150,000	N.P.	Caddo Central O. & R	.....	.....	100	2	2	2	2	+ ¼
71⅜	43⅛	29¾	17⅛	17,377,000	25	California Petroleum	43¾Q	Sept. 1, 23	21,800	18	19½	18	19	+1
98½	83	110½	90½	12,989,500	100	do pfd	1¾Q	July 1, 23	500	91	91	†90½	90¾	— ¼
54	31⅝	62¼	22¾	1,217,427	N.P.	Cosden & Co	$1Q	Aug. 1, 23	67,600	24	26	23⅝	25½	+1½
102½	93½	109⅜	85	6,998,000	100	do pfd	1¾Q	Sept. 1, 23	200	88	88	88	88	+1½
73¾	37¼	54	23	19,829,600	100	General Asphalt Co	.....	.....	8,500	26¾	29⅜	26½	28⅜	+1⅞
111	68½	83	60	7,416,100	100	do pfd	1½Q	Sept. 1, 23	1,300	60	61½	†60	61½	—1
78	45	50¼	40	3,236,600	100	Gilliland Oil Pfd	2	May 15, 21	.....	.....	.....	.....	.....	.....
91¾	61¼	78	40¾	25,000,000	100	Houston Oil Co	.....	.....	3,400	48	52½	48	51	+5⅜
.....	.....	11¼	3⅜	450,000	N.P.	Independent Oil & Gas	.....	.....	1,500	3⅜	5	3⅜	5	+1⅝
25	12	19	1¼	5,000,000	25	Indiahoma Refining	‡.15	July 1, 21	1,400	2¼	3	2⅛	2¼	+ ¼
11⅝	5¾	8½	2½	7,830,450	10	Indian Refining	.50	Dec. 15, 20	200	2½	2½	† 2½	2½	—1½
20¼	12½	19¼	8	672,180	N.P.	Invincible Oil	.....	.....	2,900	9⅛	9½	9	9¼	— ⅛
3	1	⅝	¼	25,609,510	10	Island Oil & Trans	.....	.....	51,700	⅜	⅝	¼	½	+ ⅛
7½	1½	3½	¼	14,662,890	10	Kansas & Gulf	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	22½	16	250,000	N.P.	Maracaibo Oil	.....	.....	1,400	17¾	19½	17¾	19½	+2¼
46⅜	22⅝	59⅜	20¼	1,001,714	N.P.	Marland Oil Co	$1Q	July 1, 23	64,200	21	24⅞	21	24⅜	+3¼
322	106¾	293	182	46,942,800	100	Mexican Petroleum	4Q	July 20, 23	.....	.....	.....	.....	.....	.....
108	79¼	105¼	100¼	12,000,000	100	do pfd	2Q	July 20, 23	.....	.....	.....	.....	.....	.....
34½	14½	28¾	5¾	444,604	N.P.	Mexican Seaboard	.50Q	June 1, 23	1,500	9¼	9⅝	9	9⅜	+ ⅛
32⅛	12	23¼	6	261,000	N.P.	do V. T. C	.50Q	June 1, 23	1,000	8½	9	8¼	9	0
16	11	12¼	4¾	29,791,450	10	Middle States Oil	.30Q	July 1, 23	34,800	5	5	4¾	5	0
62	47	67	31	39,626,000	25	Ohio Fuel Supply	.56¼	July 14, 23	300	32	32	x31¾	31¾	— ½
4⅜	1¾	3⅜	1¼	5,359,425	5	Oklahoma P. & R	2	Apr. 1, 21	.....	.....	.....	.....	.....	.....
69⅜	42½	48⅞	31¼	3,500,000	N.P.	Pacific Oil Co	$1SA	July 20, 23	51,200	34	37	33¾	36	+2
100⅞	48¾	93½	53	48,292,450	50	Pan-American P. & T	$2Q	July 20, 23	27,700	56	57⅞	†x53	54	—2¼
95¾	44	86	50⅞	81,045,750	50	do B	$2Q	July 20, 23	52,900	54	56	†x50⅞	52	—2⅜
12	3	6¼	1¾	198,770	N.P.	Panhandle P. & R	.....	.....	.....	.....	.....	.....	.....	.....
73	61	68	51	2,935,200	100	do pfd	2Q	July 2, 23	.....	.....	.....	.....	.....	.....
59¼	28¼	69⅝	19¾	1,183,282	N.P.	Phillips Petroleum	.50Q	Oct. 1, 23	34,400	20⅝	25	20⅜	24⅛	+2⅜
12	4	6	1½	29,622,925	25	Pierce Oil Corp	.....	.....	5,100	2⅛	2⅛	1⅞	2	0
71	32	44½	19	15,000,000	100	do pfd	2	Feb. 1, 22	200	19	20	†19	20	0
51	24⅛	58⅛	20⅛	37,450,850	50	Producers & Refiners	.50Q	Sept. 15, 23	41,100	22¼	24¼	22⅛	23½	+1¼
49	36	49⅛	36	2,845,350	50	do pfd	87½Q	Aug. 6, 23	100	39	39	39	39	—1
38⅝	26½	32	16¼	59,979,400	25	Pure Oil Co	37½Q	Sept. 1, 23	5,500	16¾	17¾	16¾	17¾	+ ¾
102¾	94	100	82½	13,000,000	100	do 8% pfd	2Q	July 1, 23	400	85¾	86¾	85¾	86½	+ ½
67	47¼	55⅛	40½	(sh) 690,854	13.40	Royal Dutch, N. Y. shares	2.15	Aug. 10	1,400	44½	45⅜	44	44¼	+ ¼
48½	34⅝	41¼	29¼	(sh) 159,854	—1	Shell Transport	1.13½	July 26, 23	100	30⅛	30⅛	30⅛	30⅛	—1⅛
13¼	12⅛	19¼	12⅜	8,000,000	N.P.	Shell Union	.25Q	June 30, 23	18,200	14¾	15⅞	14¾	15¼	+ ½
96⅞	90	95	90	20,000,000	100	do pfd	1½Q	Aug. 15, 23	400	91½	91½	91½	91½	0
.....	.....	16	6½	6,469,100	10	Simms Pet	.....	.....	2,400	7	7¾	7	7½	+ ¾
38¾	18¾	39⅜	16	4,479,565	N.P.	Sinclair Consolidated	.50Q	Aug. 31, 23	54,800	18	18¾	17⅝	17⅞	— ½
102	97⅞	99⅛	80¼	19,640,000	100	do pfd	2Q	Aug. 15, 23	1,400	81	82½	80⅝	82½	+1½
11⅞	8⅜	35	12⅛	20,576,690	25	Skelly Oil	.....	.....	11,600	14⅛	15⅛	14⅛	14⅞	+ ⅝
135	91¾	64⅛	47⅛	231,090,125	25	S. O. Califorina	.50Q	Sept. 15, 23	16,400	50¾	52⅛	50¾	51½	+1
250½	169	44⅛	30⅞	500,449,200	25	S. O. New Jersey	.25Q	Sept. 15, 23	21,500	32	33¾	32	32¾	+ ⅜
120	113⅜	118¼	114¾	199,972,900	100	do pfd	1¾Q	Sept. 15, 23	300	115½	116¼	115½	116¼	+ ¾
10¼	4	6¾	2	451,708	N.P.	Superior Oil	.50	Dec. 20, 20	700	2	2⅛	2	2¼	+ ⅛
52¼	42	52⅞	39¼	164,450,000	25	The Texas Co	.75Q	Sept. 29, 23	17,700	39⅝	41	39⅝	40¾	+1
32¾	18½	24¾	7	8,380,340	10	Tex. Pac. Coal & Oil	.25Q	June 30, 23	7,500	7⅞	8½	7⅝	8¼	+ ⅛
154	109¾	144	94	49,688,400	100	Tide Water Oil Co	2	Dec. 30, 21	100	99	99	99	99	+1¾
20½	7½	14½	3½	2,000,000	N.P.	Transcontinental Oil	.....	.....	15,500	3⅞	4	†3½	3¾	+ ⅛
134¾	85⅞	99¾	81	19,000,000	100	Union Tank Car Co	1¼Q	Sept. 1, 23	100	88	88	88	88	+3
113	102	114	106	12,000,000	100	do pfd	1¾Q	Sept. 1, 23	200	107⅜	107⅜	107⅜	107⅜	+ ⅜
34	25	30⅜	20⅛	460,000	N.P.	White Eagle Oil & Ref	.50Q	July 20, 23	1,600	21½	22⅞	x21½	22⅛	+1⅛
11⅜	2⅛	5⅞	1	959,046	N.P.	White Oil Corp	.....	.....	1,900	1⅛	1¼	1⅛	1⅛	0

*New High †New Low ‡In Scrip xEx—Dividend Total Sales 662,000

Standard Oil Stock Traded In New York Curb Market

1922 High	1922 Low	1923 High	1923 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Ch'ge
25	16⅝	19¾	13½	£3,000,000	£1	Anglo-American Oil	46½S.A.	May 15, 23	3,700	13⅞	14½	13⅞	14½	+ ⅝
12½	4⅛	7⅝	2½	(sh)500,000	N.P.	Atlantic Lobos	.....	.....	400	2¾	3	2¾	2¾	0
610	335	150	113	$ 1,000,000	100	Borne-Scrymser	4S.A.	April 16, 23	60	136	136	135	135	—9
110	83	94½	77	10,000,000	50	Buckeye Pipe Line	$1.75 Q	Sept. 15, 23	415	77	80	77	80	+3
225	175	237	207	1,500,000	100	Chesebrough Mfg	3½ Q	Sept. 29, 23	20	230	230	230	230	0
113	104	.....	.....	1,000,000	100	do pfd	1¾Q	Sept. 29, 23	.....	.....	.....	.....	.....	.....
153	125	50	32½	10,000,000	25	Continental Oil	50 Q	Sept. 15, 23	200	34½	35	34½	35	+1¾
49	28	47½	15¾	1,500,000	25	Crescent Pipe Line	37½ Q	Sept. 15, 23	200	17½	17½	17½	17½	+ ½
185	115	168	85	3,000,000	100	Cumberland Pipe Line	12A	Dec. 15, 23	.....	.....	.....	.....	.....	.....
103½	79½	117	95	5,000,000	100	Eureka Pipe Line	3Q	Aug. 1, 23	175	105	105⅛	98	98	—7
62	40	78	55	16,000,000	100	Galena Signal Oil	1Q	Sept. 29, 23	225	61	62	60	60½	+ ½
105	100	105	104	4,000,000	100	do new pfd	2Q	Sept. 29, 23	.....	.....	.....	.....	.....	.....
114	104	.....	.....	2,000,000	100	do old pfd	2Q	Sept. 29, 23	.....	.....	.....	.....	.....	.....
267	212½	41¼	28	43,750,000	25	Humble Oil & Ref	30Q	July 2, 23	600	28⅝	28⅝	28¼	28½	+ ½
198	154	171	152	20,000,000	25	Illinois Pipe Line	8 S.A.	June 30, 23	170	153	153	152	152	0
130¾	97½	123	92	39,222,750	25	Imperial Oil, coupons	75 Q	Sept. 1, 23	865	95½	99	95⅛	96	+1½
111	84	103	83¾	5,000,000	50	Indiana Pipe Line	$2 Q	Aug. 15, 23	215	85	90	85	90	+5½
27½	14	24⅞	13¼	(sh)7,188,138	N.P.	International Petroleum	25c	June 30, 23	12,500	13¾	15	13¾	14½	+ ⅞
259	150	168	123	180,000,000	100	Magnolia Petroleum	1¼Q	July 5, 23	1,765	126	130	126	128	+3
31⅛	23	29	22½	6,362,500	12½	National Transit	50Q	Sept. 15, 23	.....	.....	.....	.....	.....	.....
214	117	137	92	5,000,000	100	New York Transit	3Q	April 15, 23	75	95	95	95	95	+2½
127	90	110	96	4,000,000	100	Northern Pipe Line	5 S.A.	July 1, 23	50	104	107	104	107	+7½
365	71	85½	48¾	60,000,000	25	Ohio Oil Co	3Q	Sept. 29, 23	1,400	53	54	52	52¾	+ ⅛
44⅞	16	25½	10½	10,000,000	25	Penn-Mex Fuel	.....	.....	2,300	22½	*25½	19	19½	—3
750	520	700	152	54,000,000	100	Prairie Oil & Gas	2Q	July 31, 23	2,190	157	160	x155	157	+1
325	224	335	93	81,000,000	100	Prairie Pipe Line	2Q	July 31, 23	1,300	97⅛	99½	x97½	99	+2½
405	340	212½	161	4,000,000	100	Solar Refining Co	5 S.A.	June 20, 23	10	168	168	168	168	+7
110	77	116	93	10,000,000	100	Southern Pipe Line	$2Q	Sept. 1, 23	120	94	95	94	95	+2
249	150	195	100	20,000,000	100	South Penn Oil	1½Q	Sept. 30, 22	90	118	120	118	120	+8
70½	50½	88¼	66⅜	3,500,000	100	Southwest Pa. Pipe Lines	2Q	July 2, 23	.....	.....	.....	.....	.....	.....
135	58⅜	69⅞	49¼	220,181,638	25	S. O. Indiana	62½Q	Sept. 15, 23	99,400	53⅜	54¾	53	53⅝	+ ⅜
690	41	57	36½	8,000,000	25	S. O. Kansas	50Q	Sept. 15, 23	500	37¼	38	37¼	38	+1
131	76½	133	83	17,500,000	25	S. O. Kentucky	$1Q	July 2, 23	1,400	87½	89½	87½	89¼	+1½
217	170	285	186	3,000,000	100	S. O. Nebraska	5 S. A.	Dec. 15, 22	20	205	205	205	205	—25
675	41⅛	49⅝	35⅛	225,000,000	25	S. O. New York	35Q	Sept. 15, 23	22,700	39⅛	41⅝	38¾	41	+2
585	261	317	270	14,000,000	100	S. O. Ohio	2½Q	July 2, 23	10	278	278	278	278	+3
119½	113½	119	116	7,000,000	100	do pfd	1¾Q	Sept. 1, 23	.....	.....	.....	.....	.....	.....
37	30	39	21	1,806,200	100	Swan & Finch	2½S.A.	Nov. 1, 19	10	25¼	25¼	25¼	25¼	—2¾
710	36¼	55¼	40	60,000,000	25	Vacuum Oil Co	50Q	Sept. 20, 23	26,000	47½	49½	47	48⅛	+ ⅜
32	20	28	23	100,000	10	Washington Oil Co	20A	Jan. 31, 22	.....	.....	.....	.....	.....	.....

ready for disposition in the formal case.

Telegrams in defense of the proposed adjustment have been received from the Dingwall Petroleum Products Co., Cosden & Co., Warren Petroleum Co., Empire Refineries, Inc., and the Tulsa Traffic Association. The first mentioned said it could see no valid reason why the rates to the ports should not be the same. It said that the bulk of its business was export through New Orleans. Cosden & Co. objected to the suspension and asked for a hearing. The Empire Refineries said it was vitally interested in the New Orleans district and that the suspension of the rates would mean large financial loss making valuable property worthless for the purposes they are now used. The Warren company said it preferred to use New Orleans. At this time it said a great deal of oil was being moved for export, and it hoped the commission would not suspend.

The Tulsa Traffic Association said the unloading facilities at New Orleans were far superior to those at Texas ports and that the oil shippers preferred to use New Orleans. This protest of the Texas cities, it said was pure selfishness on their part, as rates to both New Orleans and Pacific ports had always been maintained on the same basis. It claimed to represent some 50 oil shippers and "We vigorously protest against suspension."

Cleveland Stock Market

	Par Value	Sept. 28 Bid	Asked	1922 High	Low
National Refg	25	....	37⅞	55	31¾
do pfd	100	125	130	125	118
Paragon Refg	25	6	...	16¼	10¼
do pfd	100	....	65	80	75
Fred G. Clark Co.	10	2	5	11	6

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Superior structural features, exclusively TAG, distinguish them.

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18 to 88 Thirty Third Street
BROOKLYN, N.Y.

Largest and Oldest Makers of Oil Testing Instruments

NEW YORK BONDS

Week Ended Sept. 29

	High	Low	Last	Ch'ge
Atlantic Ref. deb 5s	97⅝	97	97	—1
Barnsdall 8s	97½	96	96	—1¼
Empire G. & F. 7½s	92⅝	91⅝	92	+⅛
Humble O. & R. 5½s	95½	94½	94¾	0
Marland Oil 8s ser. A	100	98⅛	100	+3⅛
Mex Pet of Del cvt 8s	103¾	102⅞	103	—1
Pan-Am Pet & T 7s	103½	102½	102⅝	—⅝
Prod. & Ref. 8s	102	101⅝	102	+1
Prod & Ref 8s with war.	110	109	109	—1½
Sinclair Cons cvt 7s	93¾	92⅜	93¾	+1¼
do 6½s	86⅜	85¾	85⅞	—¼
Sinclair Crude 6s Ser B	94⅜	94¼	94¾	+½
Sinclair P L s f 5s	81½	80¼	80¼	—1¼
Tidewater 6½s	102½	102	102⅛	—⅝
Union Tk Car 7s	103¾	102½	103¾	+¼

NEW YORK CURB BONDS

Week Ended Sept 28

	High	Low	Last	Ch'ge
Anglo-Am	102	101¾	101⅞	—¼
Cities Serv 7s	108	107	107	—1
Cities Serv 7sC reg	89⅝	89	89⅜	—⅛
Cities Serv 7s D	89	88	88	—1½
Galena S O 7s	104	104	104	+½
Gen Asphalt 8s	101⅛	100⅝	101⅛	+½
Gen Pet 6s	94	94	94	0
Gulf Oil 5s	94¾	94½	94¾	0
S O N Y 7s '25	102½	102	102¼	+⅛
do 7s '26	104½	104½	104½	+½
do 7s '27	104½	104½	104½	0
do 7s '28	104½	104	104	—½
do 7s '29	107	107	107	+1
do 7s '31	107⅛	107	107⅛	+⅛
do 6½s	107¼	105¾	106	0
Sun Oil 7s	100¾	100½	100¾	+¼
do 6s	99	98½	98½	—½
Union Oil Prod 8s	82¾	80¼	81	+⅞
Vacuum Oil 7s	106⅛	105¾	105¾	—¼

NEW YORK CURB MARKET

1922 High	1922 Low	1923 High	1923 Low	Par Value	Stocks	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Ch'ge
13	6¾	10	5	10	Ark. Nat. Gas						
9⅛	3¼	7⅝	3⅛	25c	Carib. Synd. ctf	1,400	3⅛	3¼	3⅛	3⅛	+⅛
242	158	193	129	100	Cities Service	660	129	131	129	130½	+1½
72	51	70	64	100	do pfd	2,600	65¾	66⅞	65¾	66¾	+¾
25½	16¾	19½	12¾	10	do bankers sh	1,200	12¾	13¾	†12¾	13	0
5	1¼	7⅞	1½	N. P.	Creole Syndicate	25,900	1¾	1⅞	†1½	1⅞	+⅛
		18¾	6	N. P.	Derby O. & R	400	6¼	6½	6¼	6¾	+¾
¾	.65	1	.35	5	Federal Oil						
19½	8⅜	19¼	16¼	N. P.	Fensland Oil						
		38	24	25	General Petroleum						
9⅝	2¾	7⅝	3	N. P.	Gilliland Oil						
7¾	78	2⅞	.50	10	Glenrock Oil	500	.65	.65	.63	.65	+.04
71½	48⅛	68¼	45¾	25	Gulf Oil Corp	6,400	49⅝	51½	49¼	51	+1½
26½	2¼	4	1	N. P.	Kirby Petroleum	300	2½	2½	2¼	2¼	—¼
49¾	39⅜	58	45	N. P.	Mammoth A						
10	1	5	1½	N. P.	Marland of Mexico	4,700	3½	3¾	3¼	3¾	+¼
19	9⅜	20¼	12⅜	10	Mountain Prod	2,200	13¼	13¾	13¼	13¾	+¼
13⅜	5¾	15½	8¼	5	Mutual Oil Co	27,700	8⅞	9¼	8⅞	9⅛	+⅛
		5¾	3½	5	New Bradford	2,000	3⅝	4¼	3⅝	4¼	+½
88	40	52	16	10	New Eng. Fuel Oil						
3	.67	1⅜	.50	10	Omar O. & G	500	.60	.61	.60	.61	—.06
		13	.76	N. P.	Peer Oil Corp	600	.98	1.00	†.76	.90	—.10
9¾	4⅜	14¾	9⅜	10	Pennok Oil	2,100	11½	12½	11	12	+⅞
14¾	10	15⅜	6¾	10	Salt Creek Cons	700	6¾	7⅛	6¾	7⅛	+⅜
22	12⅜	25¼	15½	10	Salt Creek Prod	4,300	16¾	17¾	16⅜	17¾	+⅜
5	2⅜	4¾	1	5	Sapulpa Refining	2,400	1½	1½	1½	1½	0
3⅛	.80	4	1	5	Seaboard O. & G	4,300	1¼	1¼	†1	1⅛	—⅛
21	12¼	26⅝	11⅝	N. P.	Southern States	59,700	15⅜	15⅝	14¾	15	—⅜
84	23	30	19	5	Ventura Cons						
7⅞	2¼	10⅞	4	5	Wilcox O. & G	10,100	4	4⅝	4	4½	+½

PITTSBURGH STOCK EXCHANGE

1922 High	1922 Low	1923 High	1923 Low	Par Value	Stocks	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Ch'ge
12⅝	8¼	10	5	10	Arkansas Nat. Gas	1,005	5⅛	5¾	5⅛	5⅛	0
55½	21			25	Barnsdall Corp. A						
38½	20			25	do B						
112¾	64½	112½	83¾	100	Columbia Gas						
49	42			N. P.	Cosden & Co						
2⅞	2⅛	2⅜	2⅛	10	Kansas & Gulf						
31½	40	27	22¾	25	Lone Star Gas	540	24½	24⅝	24⅜	24½	0
58⅞	45⅝	58	51	50	Manuf. Light	180	53½	53¾	x52⅜	52⅜	0
45	23¾	59¼	30⅜	N. P.	Marland Oil						
15⅝	12⅜	12	11¼	N. P.	Middle States						
25	15⅛	19	11¼	1	Ohio Fuel Oil						
62	44½	65½	30⅜	25	Ohio Fuel Supply	885	32¼	32¼	x31¼	31¼	— 1
26¾	19	22⅜	18⅝	25	Okla. Nat. Gas	270	20¼	21	20½	20½	+¼
4	2	2⅞	1⅞	5	Okla. Prod. & Ref						
		74½	74½	50	Pan-American B						
11	6	10½	6	5	Pittsburgh O. & G	30	6½	6½	6½	6½	0
65⅜	57½	53½	50	13.40	Royal Dutch						
14⅞	8¾	14	6⅞	10	Salt Creek Cons	10,860	6⅞	7¼	†6⅞	7¼	+¾
37¾	8	35⅞	32	N. P.	Sinclair Cons						
47⅞	46½			25	The Texas Co						
14⅜	10	13½	7	N. P.	Tidal Osage	2,200	8	8	8	8	8
18⅜	9⅜	14	10⅛	N. P.	Transcontinental						
25	24½	29½	23¾	25	Union Nat. Gas	380	29	29	x28½	28½	—½

PITTSBURGH CURB MARKET

1922 High	1922 Low	1923 High	1923 Low	Par Value	Stocks	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Ch'ge
		15	15		Central Ky. Gas						
4⅞	1	1½	.30	10	Colombia Synd						
3	1⅞	2⅜	.40	5	Duquesne Oil						
		37	10	10	Forest Oil						
		1¼	1	1	Grant Oil						
71	50	68	46½	25	Gulf Oil Corp	100	50¼	50¼	50¼	50¼	0
.12	.02	.03	.02	1	Homer Union						
		24½	16½	N. P.	International Pet						
9	6½	8½	4	10	Marshall Oil						
.42	.18	.36	.21	1	Mexican Wyoming						
		3⅝	3⅝		New Bradford Oil						
1½	1	2⅜	1⅛		Oklahoma Eastern	4,000	1¾	1⅞	1⅝	1⅝	—⅛
1¼	1	2	.78	10	Omar Oil & Gas						
52	29	22½	12	5	States Oil						
		80	80	100	Southwest Pa. Pipe						
		23	23	25	Tropical Oil						
.09	.03	.05	.03	1	Twin City O. & G						
.06	.03			1	West Texas						

*New High †New Low xEx Dividend